The
Benjamin Smith Lyman
Collection

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His Heirs

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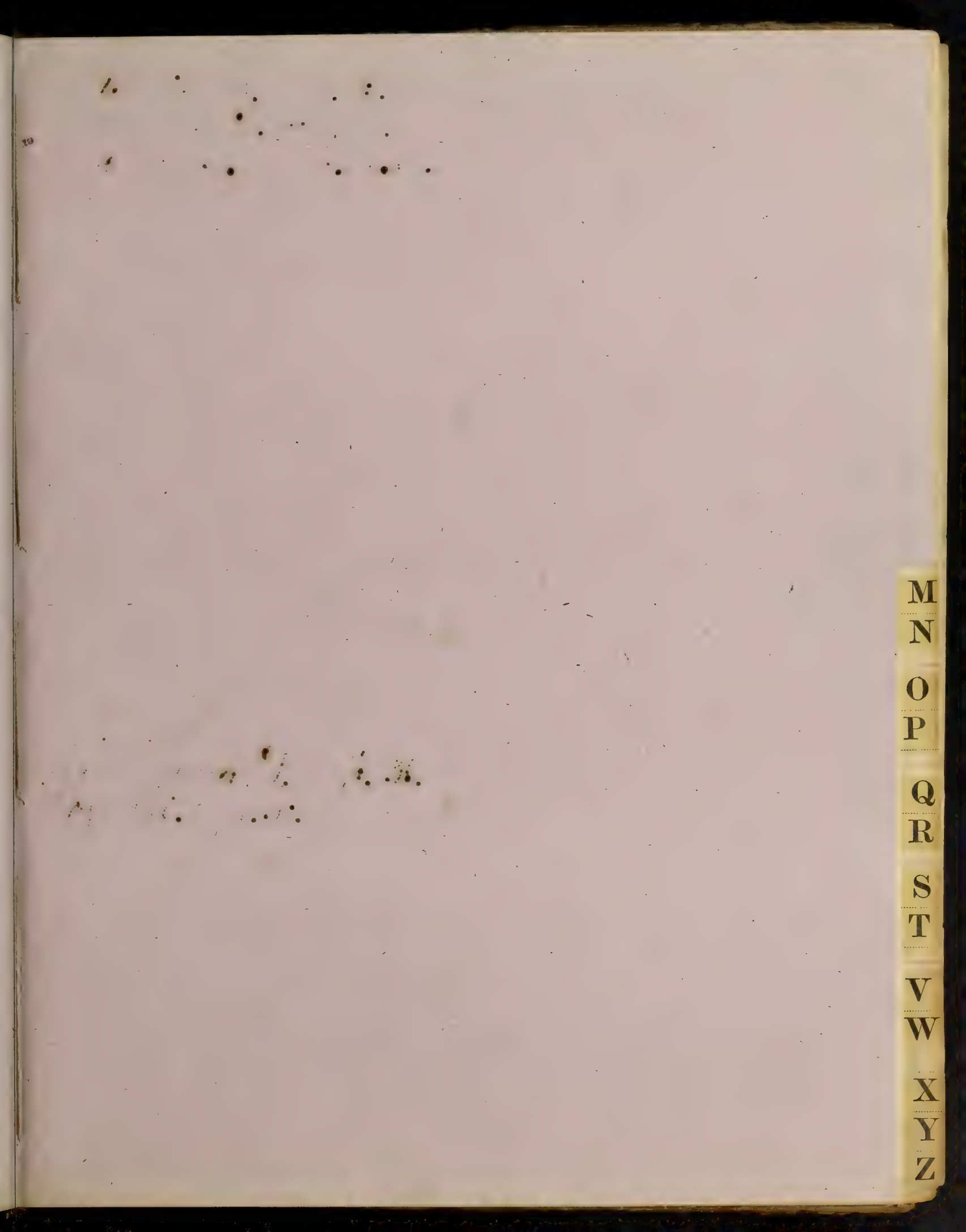
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1

[illegible]

[illegible] Esq.
[illegible]

Sir:

Last January the Kaitakushi circulated a letter which said that the Kunaisho would permit us foreigners in the service of the Kaitakushi to visit the gardens of Fukiage and Hamagoten and that we would have tickets for the purpose. It was also mentioned that we could take with us members of our families including servants; for whose conduct while there it was understood, of course, that the head of the family and ticket holder would be held responsible.

On trying yesterday to visit the Hamagoten grounds attended by some of my servants the gate keeper insisted that it was necessary for each individual to have a separate ticket. It seemed at first likely that the petty gate keeper should be mistaken rather than the high pieces of the Kunaisho and Kaitakushi, and I was disposed to dispute him indignantly; but afterwards reflected that he could hardly be-

ignorant of his duty in a case that must have occurred so frequently. Though it caused some annoyance for the moment, it is not a matter of much consequence; and it would perhaps suit my convenience even better that the members of my family should each carry his own ticket. I beg therefore that, considering their number and the liability of having my family temporarily enlarged by visitors, ten tickets at least may be furnished to me; and I have the honor to be,

Sir,

Your most obedient servant,

Benj. Smith Lyman,

Chief Geologist and Mining Engineer

to the Kaitakushi.

4

No 3

Shiba; 24 May, 1875

R. Yamauchi Esq.
Shito Shusshi of the Kaitakushi.

Sir:

As the accompanying letter was almost finished on the receipt of your favor of this afternoon, I take the liberty of sending it without alteration. But am I to understand by your letter that in future all letters of Shiine on Kaitakushi business during the Chokuwan's absence must be addressed to Messrs. Dzusho and Yasuda? Or can I address them to you to be referred by you to the proper quarter?

I have the honor to be,

Sir,

Your most obedient servant,

Benj. Smith Lyman,
Geologist in [illegible] Engineer
the Kaitak

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[illegible]

Messrs. Ozuiko and Yasuda,

~~R. Yamanouchi Esq.~~ [illegible]

~~Chiki Shushi of the Kaitakushi.~~ [illegible]

Sir:

I was informed a few days ago [illegible] that the Chinese [illegible] for the working of [illegible] mines in Yesso, upon Kaitakushi [illegible]. As such an undertaking seems to me [illegible] to result in loss I am anxious to place [illegible] record as [illegible] my protest against the plan; for if I am supposed to have acquiesced [illegible] I shall [illegible] be very much blamed, [illegible] if not by the Kaitakushi. The [illegible] and the Kaitakushi [illegible] your that I have [illegible] [illegible] as a year and a half [illegible] the working of the Mines [illegible] fitting work [illegible] government [illegible] individ[illegible] [illegible] advice, as [illegible] to the [illegible]

Railways.

The reasons for such advice are very clear. If [illegible] were very particular about the management of their own money it is probable that in working coal mines for themselves they would use every precaution for economy by engaging both skilled and honest men to help them. If they foolishly neglected to adopt such a course and wasted their money their losses would generally be thought well deserved, but not very much the concern of others. If, however, the mines be worked by the government, the management will almost necessarily fall into the hands of officials who know little or nothing of mining matters and who, however honest and well meaning, will in general almost surely administer the public money with less care and anxiety than if it was their own. The experience of the Kaitakushi in the construction of public works up to this time will doubtless prove that its officials do not in such matters, greatly excel the human nature that is elsewhere common.

I beg therefore very respectfully to urge that the mines should be worked by private individuals who should pay to the government a royalty upon every ton mined and should be subject to such regulations as would be necessary to prevent in the interest of the government injudicious, wasteful and unsafe modes of working or the harm that might result from an uncontrolled monopoly. The government and the community would in that way be as nearly as possible safe from loss, and owing to the wide spread desire of individuals to engage in mining ventures would doubtless soon receive a handsome revenue at a very small expense for collection and supervision.

I have the honor to be,

Sir,

Your most obedient Servant

Benj. Smith Lyman,

Chief Geologist and Mining Engineer

Dr. Kaitakuchi.

No. 5.

Shiba; 25 May, 1875.

Messrs. Dzusho and Yasuda,
In charge of General Business of the Kaitakushi
Gentlemen:

I beg respectfully to recommend to the Kaitakushi that future letters addressed to you in English by officials who do not themselves understand that language bear the signature of the responsible translator and be accompanied by the original Japanese letter. Such a businesslike method would perhaps add slightly to the work of the office but I feel sure would amply repay the trouble by the greater security from misunderstandings that it would afford. In my own experience I have already found very great advantage to the reputation of a high Kaitakushi official in Yesso from a partial adoption of such a course, as well as some of the inconveniences of what has become the more customary way.

I have the honor to be, Gentlemen,
Your most Obedient Servant,
Benj. Smith Lyman,
Chief Geologist and Mining Engineer of the Kaitakushi.

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c. b. Shiba; 20 [illegible] 1875.

Messrs. Inouye and Yasuda,
In Charge of General Business of the Kaitakushi.

Gentlemen;

I here respectfully [illegible] the Kaitakushi whether I [illegible] in any [illegible] held responsible for the amount [illegible] of the Geological Survey. If [illegible] it may be so stated clearly in writing [illegible] order that I may have something [illegible] vindication of my reputation in case [illegible] should ever find reason to express any [illegible] at the amount. If however I am [illegible] ble, I ask that I may be kept fully informed of the cost of articles purchased for the Survey and of all expenses for travelling, labor or anything else required for our work, and that my authority to control the same be acknowledged.

[illegible] assume any needless responsibilities, I am [illegible] neglect any that properly belong to me, and above all wish [illegible] their [illegible]

understood and to have the corresponding authority. Any other arrangement would be highly unjust.

I have the honor to be,

Gentlemen,

Your most obedient Servant,

Benj. Smith Lyman.

Chief Geologist and Mining Engineer

to the Kaitakushi.

No. 7 Shiba; 25 May, 1875.

Messrs. Dzusho and Yasuda,
In charge of General Business of the Kaitakushi:

Gentlemen:

Anxious as I am neither to neglect the responsibilities that properly belong to me nor to take on myself any needless ones (as already mentioned in my last letter) I beg to inquire of the Kaitakushi whether I am expected to offer my advice on matters connected with the Geological Survey and the mining of Hokkaido even when unasked; or shall I wait until my opinion is asked for? I fear on the one hand that my unsought recommendations may give annoyance; and on the other hand, in case they are not wished for, desire to have something definite to that effect to show in my defense if others should ever find occasion to blame me for letting unfortunate things occur that my voluntary advice might have prevented.

I have the honor to be
Gentlemen,
Your most obedient Servant,
Benj. Smith Lyman,
Chief Geologist and Mining Engineer
of the Kaitakushi.

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No. 8. Shiba, 25 May 1875.

Messrs. Dzusho and Gazuda,
In charge of General Business of the Kaitakushi.

Gentlemen:

I beg to urge that the maps of the Geological Survey that have not yet been photographed by the Kaitakushi be so treated, and, so far as they belong to reports already made, that they be printed if possible so as to go with the present volume of reports, in accordance with what General Capron so strongly desired.

I beg further that one copy of each map and, if possible, one copy of each of my printed reports be given to each of my present geological assistants. Not only would they naturally feel an interest in the work they have aided, but the final geological report and map of what they have at least partly seen in the field would be a useful and important part of their education.

I have the honor to be,

Gentlemen,
Your most obedient Servant,

Benj. Smith Lyman,
Chief Geologist and Mining Engineer
[illegible]

No. 9. Shiba, 25 May, 1875.

Messrs. Sasho and Yasuda,
Kaitakushi,
In Charge of General Business of the Kaitakushi.

Gentlemen:

I beg respectfully to offer my services in the distribution of the copies of the various reports just printed. It will doubtless be seen to be to the advantage of the Kaitakushi both in respect to its reputation and otherwise to have the report as widely circulated as the conditions of the edition permits. It would of course be especially desirable to have it placed in some of the principal libraries of different countries of the world where it would come under the eye of men interested in the scientific and other aspects of Yesso. It will also probably be thought desirable to send the book to a certain number of those individuals. Such a publication generally goes far towards raising a government in the estimation of the world, and is commonly distributed gratis. In return however

similar [illegible] are very often received, [illegible] which cannot be bought and which would be an important addition to the Kaitakushi library.

I should be happy to furnish a list of libraries, learned societies and individuals to whom it would be well to send [illegible] and I have the honor to be,

Gentlemen,
[illegible]

Chief Geologist & Mining Engineer
to the Kaitakushi.

No. 10.

Shiba; 26 May, 1875.

Messrs. Dzusho and Yasuda,
Kaitakukanji,
In Charge of General Business of the Kaitakuma.

Gentlemen:

Mr. Munroe in his recent report to me on the Toshibbs Gold Field while describing the topographical work has occasion to speak of one of the assistants as follows:

"In two or three cases the drawing of the contour-lines revealed discrepancies in the levels of certain lines; and on referring to the notes, arithmetical errors were readily detected amounting in one case to over a hundred feet. I am sorry to say that these large errors were found to have been dishonestly concealed by "cooking" and it is now impossible to find the counter balancing error. This throws doubt on the correctness of all the levels on certain lines, which were leveled by this same assistant. Notably the tenth and thirteenth lines on the eastern side of the survey, counting from the northern limit."

It is but justice to the other assistants who I trust, would sooner cut off their right hand than be guilty of such enormous dishonesty to point out the guilty individual. It is no other than the one who travelled with me as interpreter and translator last summer.

It is the same one who was also guilty of the ridiculously large errors in the lines marked "215", as mentioned in another part of the same report, errors which can now hardly be doubted to have arisen from a wilful neglect of duty. Such assistants in our work, although their falsehoods are sure to be detected sooner or later, are worse than none at all, on account of the trouble and uncertainties they cause; and it is a matter of rejoicing that he has been relieved from service in our survey.

But as I have lately seen that he was still in the service of the Kaitakushi I have to beg that he may never be entrusted in the remotest degree with the translation or interpretation of any written or oral

communications between the Kaitakushi and me and that he may never be brought or sent into my presence on any business whatever.

It is very plain that a lying translator by a mischievous twisting of the meaning that might not be perceived at the moment, nor even during another translator's revision, may easily cause very serious misunderstandings.

I have the honor to be,

Gentlemen:

Your most obedient servant,

[illegible]

Chief Adviser & [illegible]

to the Kaitakushi.

[illegible]

Tokei, 27 May, 187[illegible]

Messrs. [illegible] and Yasuda,
Kaitakukakari,
In charge of General Business of the Kaitakushi.

Gentlemen:

As my assistants in their present condition seem to suffer much from ill health at this season, causing great loss of time from their work, I propose, if you have no objection, to take them with me to Yesso without waiting (as I had hoped) to finish the maps we have in hand. We can all or a portion of us take lodgings there, say at Kayanoma, for a few days and finish the maps and corresponding reports (or at least the most important ones) before beginning fresh work. I should besides like well enough to revisit that place before putting the last touches to the map of its coal fields.

If there be no good steamer about to sail for Yesso, we should all be well pleased to go by land to Aomori, and see something of the geology on the way, in case the delay should not be thought too great.

I have the honor to be,

Gentlemen,

Your most obedient Servant.

Benj. Smith Lyman

Chief Geologist & Mining Engineer

to the Kaitakushi.

[illegible], [illegible], [illegible], 28 May 18[illegible].

Messrs Van Lisser Brothers,
Instrument Makers,
No. 10 Bund, Yokohama.

Gentlemen:

The Kaitakushi has three or four standard magnets here, of which the long tubes are [illegible] and the [illegible] injured by the [illegible] and [illegible] to get them repaired by you. The [illegible] tubes are [illegible] here. The [illegible] are in glass cases and are rather bulky & I hardly know how to send them to you safely and conveniently. If you are here in [illegible] within a very few days perhaps you would kindly call on me and look at the instruments; possibly you could even repair them here more conveniently than taking them to Yokohama.

Yours very truly,

[illegible]

[illegible], [illegible], [illegible] 27 [illegible] 187[illegible].

Messrs. Van [illegible] Brother
Instrument Makers,
No. 10 [illegible], [illegible]

Gentlemen;

I [illegible] to [illegible] your [illegible] receipt of the [illegible] bills, which were however [illegible] by the address to the [illegible] of the [illegible] house as above.

My [illegible] in order to [illegible] the money from the [illegible] wishes to have the bills correspond as closely as [illegible] with the original lists which I made and which were approved by the [illegible]. I beg [illegible] that you will specify in the [illegible] bill as follows: One [illegible] drawing instruments, 2 [illegible] and [illegible] [illegible] $[illegible]. Also please correct the [illegible] of barometers from 17 & 18 as you received and repaired twenty one in all, [illegible] one in the another bill and one more please [illegible] to the shorter bill enclosed. However please take one hand [illegible] and [illegible]

[illegible] copies from the [illegible] bill [illegible] with them [illegible] the [illegible] bill enclosed herewith. [illegible] of [illegible] [illegible] bill [illegible] to the [illegible] of two articles, so [illegible] number should be eight instead of [illegible].

[illegible] pardon for giving you so much [illegible].

[illegible] Freeman.

[illegible]

No. 14. Tokei; 31 May, 1875.

Messrs. [illegible],
Kaitakukanji,
In Charge of General Services of the Kaitakushi;
Gentlemen:
I have the honor to ask that at least one copy of the newly printed [illegible] be furnished to me for office (if not [illegible] merely private) use; and I have the honor to be,
Gentlemen,
Your most obedient Servant,
[illegible] Lyman,
Chief Geologist and Mining Engineer
to the Kaitakushi.

No. 13.

Shiba; 31 May, 187[illegible]

Messrs. Djusho and Yasuda,
Kaitakushi;
In Charge of General Business of the [illegible]

Gentlemen;

I have the honor of transmitting herewith to the Kaitakushi a copy of a portion of the Engineer's report to General [illegible] of [illegible], dated the tenth of May. The only portion which is printed was somewhat [illegible]. I lately transmitted [illegible] [illegible] no doubt intended to forward it to the Kaitakushi after printing, but in the hurry of his preparations for [illegible] probably forgot it. As you will have the printed copy [illegible] there is no need of my copying it by hand and sending it to you.

I have the honor to be,

Gentlemen,

Your most obedient servant,

Benj. Smith Lyman

Chief Geologist and Mining Engineer
to the Kaitakushi.

[illegible]

Sir:

[illegible]

[illegible] very sorry [illegible]
[illegible] preparations to [illegible] the
[illegible] after that of [illegible]
[illegible] the honor to be,

Sir,

Your most obedient Servant
Benj. Smith Lyman
Chief Geologist and Mining Engineer
to the Kaitakuah

[illegible]

J. Takahashi Esq.
Assistant Geologist.

Sir:

You will please [illegible] one of [illegible] and make preparations to start by the next steamer after that of tomorrow.

I have the honor to be,

Sir,

Your most obedient Servant,

Benj Smith Lyman,

Chief Geologist and Mining Engineer
to the Kaitakushi.

Shi[illegible] [illegible] 1873

J. Shimada Esq.
Assistant [illegible]

Sir,

If you will please ac[illegible]
me to Hesse [illegible] very soon [illegible] the
preparations to [illegible] by the next
[illegible] after that of tomorrow
I have the honor to be,

Sir,
Your most obedient servant
Benj. Smith Lyman
Chief Geologist and Mining Engineer
to the Kaitakushi.

Shiba, 1 June, 1875.

E. Yamauchi [?] Esq.
Assistant Geologist.

Sir,

You will please accompany me to Yesso very soon; and make preparations to start by the next steamer after the last of this week [?].

I have the honor to be,
Sir,
Your most obedient servant,
Benj Smith Lyman,
Chief Geologist and Mining Engineer
to the Kaitakushi.

Shiba, 1 June 1875.

S. [illegible] Esq.

Assistant Geologist.

Sir:

You will please accompany me to the [illegible] geological survey, and make preparations to start by the next steamer after the [illegible] of [illegible].

I have the honor &c,

Sir,

Your most obedient servant,

Benj. Smith Lyman

Chief Geologist and Mining Engineer to the Kaitakushi.

[illegible] 15.

[illegible] 2 June, 1873.

Messrs. [illegible] and [illegible],
[illegible]
in [illegible] of Business of the Kaitakushi.

Gentlemen:

In accordance with your favor of the 31st of last month I have instructed the Geological assistants to make preparations for accompanying me to Yesso by the next steamer after the Kiushiumaru, perhaps ten or fifteen days hence.

I have the honor to be,

Gentlemen,

Your most obedient Servant,

Benj. Smith Lyman

Chief Geologist and Mining Engineer to the Kaitakushi.

Phila.: 3 June, 1875.

Dear Mr. Noguchi:

[illegible] the [illegible] of which you [illegible] the interest on the [illegible] is probably [illegible] right [illegible]

[illegible] for the [illegible] a draft on [illegible] [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] for your faithful [illegible] [illegible] [illegible] me [illegible] [illegible] [illegible] the [illegible] [illegible] me personally [illegible] [illegible] additional [illegible] [illegible] a constantly [illegible] [illegible] [illegible] and [illegible] more [illegible] truthfulness you will be [illegible] [illegible] our little company [illegible] [illegible] and to be a great light among [illegible]

I have the honor to be [illegible]

Your [illegible]

[illegible]

[illegible] Geologist and Mining Engineer

to the [illegible]

[illegible] [illegible] 7 June, 187[illegible]

Messrs. [illegible] Yasuda
[illegible] Takeuchi,
In charge of General Business in Kaitakushi.
Gentlemen:

In accordance with your letter of day before yesterday, I have written to Mr. [illegible] Saito to relieve him from his duties as [illegible] assistant, and I have the honor to be,

Gentlemen,
Your most obedient servant,
Benj. Smith Lyman
Chief Geologist and Mining Engineer
to the Kaitakushi.

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[illegible]	15	7	–	22	[illegible]		
[illegible]	12	–	–	[illegible]		[illegible]	–

II. [illegible]

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[illegible]	1	–	–	1	–	–	1
[illegible]	13	1		14	–	–	14
[illegible]	4	–	–	–	4	–	–
[illegible]	15	16	2	33	11		
[illegible]	8	6	6	–	20	–	
[illegible]	11	–	–	–	11	–	[illegible]
[illegible]	15	–	3	7	8		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	12	14	3	[illegible]	12	–	[illegible]
[illegible]	–	15	–	[illegible]	8		
[illegible]	12	–	–	12	2		
[illegible]	15	9	–	24	4	–	
[illegible]	–	1	–	1	–	–	1
[illegible]	6	–	–	6	–	–	6
[illegible]	1	–	–	1	–	–	1
[illegible]	1	–	–	1	–	–	1

[illegible]	–	11	–	–	11	1	–	10
[illegible]	–	–	7	–	22	3	–	18
[illegible]	–	15	–	–	15	2	–	13
[illegible]	1	–	–	–	1	–	–	1
[illegible]	–	15	–	–	15	–	–	15
[illegible]	–	–	8	6	14	–	–	14
[illegible]	–	–	60	7	67	17	–	50
[illegible]	–	–	80	–	80	–	–	80
[illegible]	–	12	9	6	27	9	–	18
[illegible]	–	6	15	10	31	16	–	15
[illegible]	–	–	1	3	4	–	–	4
[illegible]	–	2	50	30	82	32	–	50
[illegible]	–	–	1	4	5	1	–	4
[illegible]	–	6	–	–	6	[illegible]	–	[illegible]
[illegible]	–	–	1	–	1	–	–	1

III [illegible]:

[illegible]	–	1	–	–	1	–	–	1
[illegible]	8	12	7	–	27	–	3	24
~~[illegible]~~	–	–	–	–	–	–	–	–
[illegible]	–	–	–	4	4	–	–	4
[illegible]	–	–	–	2	2	–	–	2
[illegible]	–	–	–	12	12	–	–	12
[illegible]	–	20	8	3	31	10	–	21

[illegible]							
[illegible]	20	7	5	32	9	–	23
[illegible]	20	7	9	36	11	–	25
[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]							
[illegible]				1	–	–	1
[illegible]				2	–	–	2
[illegible]	1	–	–	1	–	–	1
[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	10	10	20	12	20	10	– 20
[illegible]	–	12	–	[illegible]	[illegible]	–	[illegible]
[illegible]	–	18	–	24	42	13	– 29
[illegible]	–	[illegible]	[illegible]	24	[illegible]	–	16
[illegible]	–	15	20	12	47	32	– 15
[illegible]	–	15	18	–	32	25	– 7
[illegible]	–	–	–	6	6	–	– 6
[illegible]	–	–	20	–	20	16	– 4
[illegible]	–	–	–	6	6	–	– 6
[illegible]	–	–	–	72	72	–	– 72
[illegible]	–	–	120	–	120	26	– 94
[illegible]	–	15	72	112	199	87	– 112
[illegible]	–	10	[illegible]	60	131	71	– 60
[illegible]	–	–	–	2	2	–	– 2
[illegible]	–	1	1	2	4	2	– 2
[illegible]							

[illegible]			–	20	–	20	6	–
[illegible]	150	240	–	–	390	210	–	180
[illegible]			–	1	16	–	17	1	–	16
[illegible]				–	–		–	–		–
[illegible]				–	8	–	–	8	8	–	–
[illegible]			–	1	–	–	1	1	–	0
[illegible]			–	–	10	12	22	10	–	12
[illegible]				–	–	–	3	3	–	–	3
[illegible]			–	1	–	–	1	1	–	0
[illegible]				–	–	5	12	17	1	–	16
[illegible]			–	1	–	1	2	1	–	1
[illegible]			–	1	–	6	7	–	–	7
[illegible]			–	4	–	–	4	–	–	4
[illegible]			–	15	6	–	21	1	–	20
[illegible]			3	–	–	–	3	–	–	3
[illegible]			–	3	3	1	7	3	–	4
[illegible]				–	–	–	20	20	–	–	20

IV. [illegible]

[illegible]			1	–	–	–	1	–	–	1
[illegible]			1	–	–	–	1	–	–	1
[illegible]			7	–	–	3	10	–	–	10
[illegible]				–	–	–	5	16	–	–	10

[illegible]	[illegible]			9		8	1
[illegible]	3		12	7			
[illegible]	[illegible]			[illegible]			[illegible]
[illegible]	37			[illegible]		[illegible]	27
[illegible]			4	4			4
[illegible]	[illegible]			[illegible]			[illegible]
[illegible]	5			[illegible]	5		[illegible]

[illegible]

[illegible]

[illegible]		1		1		1	0
Lecture desk		1		1		1	0
Long narrow [illegible]		7		7		7	0
Long wide tables		2		2		2	0
[illegible]		2		2			2
Map drawers			1	1			1
Large [illegible]		1		1			1
[illegible]			6	6		2	4
[illegible]		9		9		9	0
[illegible]		2		2			2
[illegible]		1	5	6			6
[illegible]		5		5		5	0
Black [illegible]		2		4		4	0
[illegible]	½			½	½		0
[illegible]		[illegible]	[illegible]	3			3

[illegible]	–	3	–	–	3	2	–
[illegible]	–	–	–	200	200	–	–
[illegible]	1	–	–	–	1	1	–
[illegible]	–	1	–	–	1	½	–
[illegible]	–	9	–	–	9	2	–
[illegible]	–	9	–	–	9	2	–
[illegible]	4	–	–	–	4	–	4
[illegible]	1	–	–	–	1	–	1
[illegible]	–	–	–	1	1	–	1
[illegible]	–	–	–	7	7	–	7
[illegible]	–	–	–	13	9	4	1
[illegible]	–	–	6	4	10	2	8
[illegible]	–	–	130	112	252	115	137
[illegible]	–	–	6	8	14	3	11
[illegible]	–	–	–	10	10	–	10
[illegible]	–	–	6	6	12	1	11
[illegible]	–	–	131	2000	2000	–	2130
[illegible]	–	3	5	7	–	–	9
[illegible]	–	4	8	12	4	–	8
[illegible]	–	–	–	16	16	–	16
[illegible]	–	–	–	24	24	–	24
[illegible]							
[illegible]	–	–	–	2	2	–	2
[illegible]	–	–	–	2	2	–	2

Vrips	-	-	2	1	3	2	-	1
Pack [illegible] mercury	-	4	-	-	4	-	-	4
Carbolic acid	-	-	-	4	4	-	-	4
[illegible]	-	-	2	-	2	-	-	2
Red [illegible]	-	1	-	-	1	-	-	1
[illegible]	-	4	1	-	5	-	-	5
Cooking [illegible]	-	2	-	-	2	-	-	2

(6) Four hammers and 4 picks were [illegible] in spring [illegible] the [illegible]
(7) The level was left at [illegible] in 1875 [illegible] probably in Mr. [illegible] hands.
(8) The flags were ordered by Mr. [illegible].
(9) The 8 [illegible] of [illegible] was [illegible] 3 of them were [illegible] the [illegible] last summer [illegible].
(10) The fifteen [illegible] are very [illegible].
(11) The two remaining [illegible] and [illegible] probably in the hands of Messrs. [illegible] [illegible].
(12) The [illegible] instruments were left [illegible] last fall, and I have never had any [illegible] of them but Mr. [illegible] probably has the [illegible] for them.

E. & O. E.

Hilo, 16 June 1876.

Benj. [illegible]
[illegible] [illegible] to the [illegible].

Notes:

① In the column marked "1873 W" are in-cluded the things purchased or ordered before [illegible] [illegible] in charge of the Geological Survey; in the co[illegible] marked "1873 L", those bought after [illegible] in the year. The numbers marked in those columns are especially uncertain as I [illegible] [illegible] any record of the articles bought.

② The Diamond drill and its appurtenances were all left in a godown at [illegible], and a receipt was given which is probably in the hands of the [illegible] [illegible], but [illegible] no list of the articles.

③ The list of hand boring tools is copied from the agreement made by the manufacturers, [illegible] and [illegible] [illegible], but I have no list of the things actually received from them by the Kai-takushi. These things are [illegible] stored at [illegible] and the receipt is probably held by [illegible] [illegible].

④ I am uncertain whether the [illegible] were made, bought or repaired, or not; if bought [illegible] was [illegible] at [illegible].

⑤ The sledge was [illegible] left [illegible] from [illegible]

Kailakuchi, Mr. R. Yamauchi

[illegible]

Thiba; 14 June 1875.

Benj. Smith Lyman,
Chief Geologist and Mining Engineer
to the Kaitakushi.

No 10.

No. 21. Tokio, 15 [illegible]

Messrs. [illegible] and [illegible]
[illegible]
[illegible]

Gentlemen:

I have to thank you for the [illegible] [illegible] you [illegible] in your [illegible] [illegible] of last month [illegible] to the [illegible] [illegible]. [illegible] advice seems best to me in regard not merely to [illegible] and mining matters but to many [illegible].

In reference to my special [illegible] I [illegible] [illegible] [illegible] it my duty to advise you without being particularly asked, and in other matters, though not feeling strictly bound to [illegible] [illegible] in like manner yet may [illegible] [illegible] in the [illegible] and in the Japanese government and people may find me sometimes to [illegible] [illegible] of the invitation [illegible] [illegible] offering advice. I must [illegible] [illegible] beg that you will bear in mind [illegible] [illegible] [illegible] to advice in [illegible] [illegible] [illegible] [illegible] that you [illegible]

Hakodate, 21 June, 1873.

Messrs. Misawa and Tukahashi,
Assistant Geologists.

Gentlemen:

You will please accompany me at once to Sapporo by way of Kayanoma, in order to aid me in a little work there is to do near the coal mines.

I have the honor to be,

Gentlemen,

Your most obedient Servant,

Benj. Smith Lyman,
Chief Geologist and Mining Engineer
to the Kaitakushi.

Sir Excellency

Niyamidza (Iwaki)

Hispanidad (Bonilla)

[illegible] [illegible] [illegible] not accustomed [illegible] the same that are accustomed to the presence of foreigners, and one [illegible] lady [illegible] to whom even came to me in the street and [illegible] mistake accosted me as an old acquaintance and invited us to [illegible] her house. A public notice close by forbidding entrance into the adjoining [illegible] temple grounds on horse back or in a carriage was written in English and French as well as Japanese.

Such a prohibition seemed in this case hardly necessary, as the entrance was by a steep flight of 234 steps. The temple seems to have been formerly a famous one and is in a grove at the top of a hill. A little lower down the hill toward the sea is a large building formerly used for the dwelling of the priests, but it is now chiefly empty and ruinous but partly used as an hotel. We found there what was called a petrified pine, that turned out to be a block of flint a couple of feet or more in diameter. It [illegible] a [illegible]

color in some parts dark. The fine wood- fully [illegible], in [illegible] light a sort of [illegible], and in fact veined somewhat as if by the great rings of a tree. But the veins did not seem to be at all circular like such rings, nor very continuous; and nothing like lengthwise fibres were seen. The layers were too obscure to leave no doubt, but the impression given was rather that of merely a [illegible] of flint that had by repeated layers filled some cavity or vein in rocks.

The [illegible] [illegible] of the village [illegible] the remains of four old salt kettles which give rise to the name Shio-gama. The [illegible] of such [illegible] use for making salt was so long ago, and is so completely forgotten, that some of the inhabitants even assert it to have been before the time of Jimmu tenno, or say three thousand years ago. But it is hardly likely that any traces at all of the kettles could have endured in their exposed position for a very great length of time, and it is not surprising that they could have lasted

accomodation,

to increase to an indefinite extent. Its prominence as one of the ports open to foreigners is fast sinking into insignificance, from the fact that the increasing number of Japanese steamers, which can visit other ports on the way coming and going, are making it unprofitable for foreign vessels to come so far to this one point. Hakodate, moreover, near the small end of the narrow mountainous southern portion of Yesso is not the natural outlet of a very large nor very productive region. Its main products, sea weed and fish, can with the improved Japanese steamers be shipped direct to Nippon or to China, from many other points on the peninsula or on the rest of the island without any need of handling there by foreign bottoms at Hakodate. Whatever may be said by the disappointed foreign or native property holders at Hakodate, it is clear that a town at the natural outlet (or, by railroads, artificial outlet) of a great valley like the Ishkari, rich in fertile land, in timber and coal is far surer of indefinite growth

throughout along future. Sapporo may perhaps not be destined to be such a business centre, for which Otaruna or possibly Mororan may be better fitted; but Sapporo will always be a pleasant, healthful, picturesque and convenient place for a seat of government in a fine farming region and very near a large marine, mercantile, agricultural, manufacturing and mining population.

On the morning of the 23d of June the two remaining assistants Messrs. Misawa and Bakabashi and I accompanied by the quartermaster Mr. Nishimura and my copyist Mr. Adachi set out for Mori on our way to the Kayanuma coal mines and to Sapporo. We arrived at Mori, 28¾ miles (11½ ri) towards night; but on the way I had the pleasure of spending several hours with Mr. Dun at the Nanai Government farm and of hearing something of the very useful work he has been doing there. As I have in a former report already spoken of the geology and topography of the last journey, and indeed of a whole journey from Hakodate hitherto, a repetition of them may be

passed over here.

The New Road, by which we travelled had had its bridges all put in good order since last fall except one or two. [illegible] alone makes the road quite impassable for wagons. Although the road is generally very smooth, there are still in the [illegible] deep traces of the [illegible] made by the horses in the end of winter. On that part of the road some labourers were employed [illegible] the sides of the cuttings which had by washing become too steep. In other [illegible] places the drain at the side of the road had become at least temporarily filled up, and should be thoroughly reopened. [illegible] quite as much as any thing [illegible] proverb well applies:

"A stitch in time
saves nine."

The number of passers on the road seemed to be very few indeed, and the amount of goods carried across extremely little; perhaps owing partly to the season of the year, when it is now [illegible] safe for vessels to [illegible]

dried to Mori and to other less sheltered points. If the road however were kept in repair, there would perhaps be ample inducement for the establishment of at least one line of daily waggons for carrying goods along the road, much more cheaply than can be done on the backs of horses. Such a business would be sure to increase, from the very fact that its cheapness would cause a greater demand for the articles so transported.

At Nanai I was more than ever convinced of the advantage of the plan I proposed last year, that the Kaitakushi should give away or very cheaply sell the most of the horses of Yesso to the inhabitants. There is great ignorance about the proper care of horses, and as long as they are government property there will naturally be comparative indifference as to their right treatment. Perhaps even on the government farms (where however men better fitted if possible than common Yesso farmers should be selected for managing the live stock) it might be advisable to present some of the officials with good horses and forbid

them to ride any of the government ones. Self interest would teach the owner of horses not to abuse them unmercifully.

On the 24th of June we rode from Mori to Yamukushinai 16¼ miles (6½ ri). In passing Washinoki the two geological assistants and I left our horses for a while and walked into the woods under the guidance of five bright little boys (no older guide could be obtained that day) to see the pits that were dug there last year for oil by a certain Japanese company of merchants. There was a rumor last fall as mentioned in my recent report on the Washinoki oil lands that they had succeeded in obtaining as much as 50 gallons (or 12 to) of oil a day. We could find no one the other day who knew the exact amount obtained, but it was very clear from what we did learn that the rumor was a gross exaggeration; and that if any thing like that amount of oil was gathered in one day it was not the accumulation of a single day in the wells, but of several. Indeed the most definite and probable estimate that

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wi obtained by questioning a number of villagers was that in the whole season about 25 (more than 20 but less than 30) tubfuls of "two to" each, or about 200 gallons (or 50 to) had been obtained in the whole of last year. Six or seven pits had been dug; all but one or two were vertical wells two or three feet square; and the exceptions were small horizontal drifts draining such shafts; for these were all dug at some little height on the bank of the brook and generally reached down to about its level, below which the water was probably troublesome. The deepest and almost solely productive of the new wells is about 45 or 55 feet deep and at the top for twenty five feet down about three feet square, but for the rest of the depth only about two feet square; and like the other wells is dug apparently throughout in soft greenish gray sand rock. The yield of the deep well is said to have been two tubfuls (8 gallons or 4 to) daily. There were traces of oil at another well, a drift running to a shaft about 30 feet deep and two feet square.

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The drift probably starts at a point where one of the old oil exposures was. Another similar shaft about 30 feet deep a few yards distant was quite unproductive. Another likewise without oil was dug perhaps 25 feet deep in the bank a few yards from the exposure that was described in my report on these oil lands as the second best of all. An unsuccessful shaft and drift were also dug they say near the Main Well of that report.

We have the position of the wells precisely enough to lay them down pretty exactly on our lately finished map of the oil lands, although we have not yet had a chance to do so. The new productive well will no doubt be found to be on or very close to the outcrop of one of the oil bearing beds as laid down on the map. We were told that the oil taken was retained for burning in lamps, and we saw a lamp full of it. The price was said to have been ten cents for one quarter of a shoe (or at the rate of 40 cents a shoe or a dollar a gallon). It was sold

in the neighboring villages especially at [illegible]. The oil known is so heavy that the yield of lighting oil in refining must be compara-tively poor; and the best plan would be rather to make lubricating oil. The works were carried on from the third to the tenth month of last year by half a dozen Chinese and nearly as many laborers, but were at length finally abandoned as wholly unsuc-cessful, a result quite in accordance with the advice that I gave at the outset.

At the Kushinai [illegible] we saw the oil springs there. In a [illegible] ten [illegible] what had seen before, the priest of the Buddhist temple showed us near the back of the building two places where slight traces of oil had been found in a [illegible] ditch, and another such place a [illegible] north of the ravine a few yards beyond; all places that also correspond very [illegible] the out-crop of the oil bearing bed as laid down on our recent map. The small quantity found also confirms what is said on that point in my late report on these oil lands.

near the mouth of the ravine, on its eastern bank we found a small exposure of soft greenish gray sandrock without any clear dip, and without any oil; although some small black spots in it may possibly be traces of asphalt.

On the 25th of June we rode from Yamukushinai to Oshamambe, 22½ miles (ri); stopping a little to look once more at the curious rock of Kuroiwa. The beaches on either side of that village had a large number of men upon them hauling in large nets of herring. Looking up Kunnui valley numerous patches of snow were still to be seen on the mountains, probably on the westerly side of the Toshibets.

Through the morning of the 26th of June I was very ill and it was at first a little raining, so that travelling was out of the question. But at noon the weather had cleared up, my health was better, and a few horses were obtained, so that a portion of our party could go on from Oshamambe to Kuromatsunai, 15 miles (6 ri), where we

arrived so[illegible] before night. So 10 of the road, though still very rough and bad, had by the [illegible] the season without [illegible] Spec[illegible] repairs so much improved that a pass[illegible] by could form no conception from it of its horrible condition last fall, a condition that must however return every year until some effective repairs are made. The travel even by so poor a road across the peninsula here seems to be far greater than between Hakodate and Mori, judging by the very large number of men and horses we met that day and the next; and the importance of the road would certainly seem to claim for it more attention than it has for a long time received. Perhaps with a better road several waggon loads daily by some regular line could be caried across even at the beginning. The saving of distance over going round the peninsula by water is here far greater than at Mori, and the natural facilities for road building much better.

Iwanai; 30 June. At Kuromatsunai

we met Mr. Carrey a French traveller, who was on his way back to Hakodate from a trip to Sapporo. It seemed almost like meeting a fellow countryman so far from home, and the evening and early morning passed very agreeably in his society.

He had heard (what I have long believed to be the case) that foreigners were desirous of undertaking coal mining in Yezo, and foreigners too who would prefer to associate Japanese capital with their own. It is quite the contrary of what was stated lately in Yedo by one of your representatives as an argument for the government's working of the mines; namely, that neither natives nor foreigners were willing to enter upon such undertakings, and it was necessary for the government to set an example in that line to its countrymen. It was promised however to refer to you my letter protesting against such government works as sure to be wastefully or injudiciously managed by officials as compared with the carefulness of men who are laying

[illegible]

set their own moneys.

You charged me a year and a half ago not to divulge the rules by which the Kaitakushi would dispose of mining privileges to private individuals; and it has been easy to comply with the request, since I have been kept at this moment in absolute ignorance of what those rules may be, and even of any motive for not making them public. The world however, if not the general government nor the Kaitakushi, must hold it almost incredible that a man in my position should not be consulted on a matter in which I should naturally be thought to be in some degree responsible.

I shall therefore without waiting any longer for a special invitation venture to give here a very general outline of what seems to me the best manner of disposing of coal mining rights in Yesso, aided by recollection of the condition of coal mines in other countries. In the United States, for example, the coal lands have been sold with the coal in fee simple to private individuals, who have made what arrangements they pleased in regard

to mining, subject only to the laws in force of the safety of miners, and only at (like the holders of other property) to government taxes. In Nova Scotia, on the other hand, although the surface of coal lands is sold like other lands, the right to mine the coal is reserved to the government, but is leased to private parties at a royalty of ten cents a ton. In case of a sale of the coal mining privileges outright, as has been done in the United States, the individuals who buy would have to bear all the risks, uncertainties and delays of mining and selling the coal, and would readily pay in advance an adequate price for the unmined coal; it would necessarily be at very low as it was here. The government can much better afford to undertake such risks and uncertainties and endure the delays, and in fact would have much more control over them. The government, too, in merely leasing the mining privilege would retain still more distinctly the right to inspect and regulate the mode of working, so as not only the miners' lives should

safe but the coal should not be mined in such a way as to cause (as sometimes happens) the wanton waste of large portions of the coal beds. I am not informed whether or not the Kuitukushi has the right to alienate the coal forever from the government; but, even if it have, it seems most advisable to adopt the system of leasing, under proper rules, of course.

These rules should, if possible, at the same time that they secure to the government (that is, to the public) a good final return for its property, encourage mining enterprise. Only among the public at large and not to the exclusive benefit of the personal or political friends of government officials. In Nova Scotia, the coal mining privileges are leased on very liberal terms, in order to increase the business and prosperity of the country, looking not merely for direct revenue from the coal mined but to the greater general wealth of the population. Any individual, native or foreign, can obtain the exclusive "[illegible]" for coal (with a [illegible]

mining) over any tract of five square miles, not already similarly occupied, on payment of a small fee, if I remember rightly only twenty dollars. At the end of a year he may select any one of the five square miles, and on payment of a fee of fifty dollars obtain the right to work coal. If within two years thereafter he shall have really begun effective mining operations, he may obtain a lease of the coal of that square mile at the rate of ten cents a ton for every ton mined and sold. All leases are (for special local reasons) to terminate in [illegible] when the [illegible] will [illegible] free to dispose of all its mines. At the time the present system was adopted the leases had a little over twenty five years to run, and twenty years is a common [illegible] such leases [illegible] our [illegible] United States. By [illegible] however, the [illegible] [illegible] increased to thirty seven and a half cents on [illegible] anthracite. In Nova Scotia the holder of a right of search is required to

report the results of his investigations to the government, and the holder of a lease is required to hand in yearly a map of the underground workings.

The Nova Scotia system is in some of its details not altogether without shortcomings. Many tracts after the leases are once granted lie almost or quite unworked for years, without yielding as they should, to the revenue of the government nor to the business activity of the country. Although the rights to search and to work are nominally given to the first applicant, cases might well occur where the friends of not over honest government officials might by secret information, or otherwise, obtain an advantage over others in trying to obtain such privileges. It has also been a common thing for the lucky owner of such a privilege to sell it for a large sum of money, especially after a successful but inexpensive search for coal. A gambling spirit of speculation is in that way fostered, and the inhabitants hasten to take up mining rights in the surrounding country, although

wholly ignorant of the probable mineral value of the land. The owners of mining rights are as negligent as they dare be under a liberal, lenient government in regard to reporting the results of their search or mapping their underground works.

It seems, therefore, decidedly best for the government to keep in its own hands the search for minerals and the underground mapping, which by a general geological survey and body of surveyors and mine inspectors would in the end cost the public [illegible] less than the aggregate of numerous [illegible] surveys of the separate tracts. [illegible] speculation in lands of imaginary [illegible] value would in that way be [illegible] with its great attendant losses; [illegible] government could [illegible] furnish [illegible] operators with a geological and [illegible] and [illegible] of that [illegible] to be worked. In return it would be fair [illegible] to demand a somewhat larger fee say five hundred dollars for a square mile; for a payment of which fee, on the other hand,

the preparation of a similar map and report within a reasonable time might be afforded for any desired tract of like size. If the prospective mining operations should be actually begun within say a year (or two years) after the transfer of the map and report, then a lease might be made out. In order to discourage the practice of retaining [illegible] a lease without doing a fair amount of actual work upon it, a certain payment might be required upon all the land that is lying idle every year, say a thousand dollars. That would also ensure the government from loss in the expense of inspection and examining surveys. Twenty years would seem to be a suitable enough length of time for the lease to run, if the present U. States should have the right to alienate such valuable public property for so long a time. Thirty cents a ton would seem to be a fair enough royalty to expect in Alaska, and the price of coal here in the East is so high that such a rate would would not discourage mining. In order to prevent the

mischief that might arise at any future time from favoritism in the allotment of mining claims and to secure to the government the profit that should properly accrue from any great demand for such privileges; they might under conditions like those just named be offered me by me to the highest bidder, to the man who would pay the largest sum down for the lease. It is unnecessary here to go into the matter more particularly; it will be time enough to work [illegible] the minute details whenever it shall be decided to adopt [illegible].

May [illegible] 2 July — With regard to permitting foreigners to undertake mining [illegible] it may be best to say a few words; [illegible] is needed to convince [illegible] of most countries of the advantage of having the aid of foreign capital in the development of their natural resources. It is to be sure generally believed that there is some reluctance in the present case to allow foreigners to participate in such oppor-

facilities as may exist here for amassing wealth by mining enterprises; and many seem to fear that, if a foreigner should be permitted to embark in an individual enterprise and should find it profitable, the jealousy of the government against him as an outsider would thereupon devise such methods of hampering him as would result ultimately in his ruin. It is hardly to be supposed, however, that any government with the slightest pretension to enlightenment could be guilty of such outlandish folly as that.

But even if there be any political or other reason for excluding foreigners from operating mines by themselves in a country to whose laws and customs they are not yet willing to submit altogether, there would seem to be no reason for discouraging the association of foreigners with natives in such enterprises. On the contrary there are very strong arguments in favor of the plan. Besides the addition of foreign capital to native, which would necessarily tend to increase the business and wealth

and the revenue of the country, there would be a great advantage to the native capitalists, hitherto inexperienced in modern business and perhaps timid about engaging in it alone. By uniting on equal shares with foreigners well trained in the best business methods of western countries, they would without cost get the benefit of all their skill and experience. Hardly any better way could be devised for introducing into the country those excellent modern methods of business, that are the results of centuries of experiment and progress, and are so greatly lacking in Japan. The Japanese would be very greatly gainers; but the foreigners, on the other hand, would be free from harassing suspicions as to the treatment they might at any time receive from the government; for the very fact of equal association with natives would protect their capital and enterprise.

Sapporo, 7 July. — On the 27th of June, Sunday, we rode from Kuromatsunai to Isoya, 15 miles (6 ri); and on the 28th, from Isoya across

3x

Raiden Mountain to Iwanai, 11 miles (7 ri). The road across the mountain is still extremely bad, especially on the Hakodate side. On approaching Iwanai we found half a dozen men making the very stony road a little smoother, and it seemed at first as if here at last was a place where the Kaitakushi was attending a little to road repairs; but no, the villagers were themselves doing the work in preparation for a religious festival. It seemed for a moment almost a pity that superstition did not require the dragging of a heavy car across Raiden Mountain every year; for in that case the road would be sure of being put in good order at least once a year. As it is, both the roads and the hotels of Yesso seem to have been gradually but steadily deteriorating for at least three or four years. The new road from Hakodate to Mori and Mororan to Sapporo and Otarunai has, to be sure, been built; and a few new hotels of about the same date show that there were hopes then of speedy

improvement in the condition of the country.

On the 29th of June it was raining all day and we stayed at Iwanai; I wrote a portion of this report, and the copyist copied another part of it. On the 30th it was also very threatening weather all the morning and I still worked at the report. In the afternoon, however, we rode from Iwanai to Kayanuma, 7¼ miles (3 ri). In passing Horikap we noticed that the large building of the old abandoned salt manufactory had been turned to account at last as a place for sawing lumber and for a carpenters' shop.

On the 1st and 2d of July we visited the coal mines. We found that a fault of about thirty feet had been met with in the Honshiki drift and had been overcome by a cross-cut tunnel up through the rock, but that after following the coal less than fifty yards further it seemed to be growing thinner again as if near another similar fault. The Shinshiki drift had reached the first fault and

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34

[illegible] would be necessary, as with a new mine,

No. 2 is at a level of [illegible] feet above the Tarioko drift, and is the lowest [illegible] near the bed in the K[illegible] valley. It would be very desirable to open it up by a drift, as recommended [illegible] letter, where its identity with the Horonai bed was already declared (although [illegible] No. 1 to the same were not then known). [illegible] waiting for that letter a new drift has been driven a few yards [illegible] No. 1 in the belief that it was the Horonai bed instead of the Midzunokishiri bed which it really is. The coal in the new drift was about four feet thick, and was said to be of good quality, so that it might be worth while to continue the drift, for the sake of working that bed, if it be not desired to lay out the whole available force for the present in working beds that are still thicker. [illegible] Tarioko and the Midzunokishiri drifts are on the same level, it is [illegible] desirable to go on with the Tarioko, because the two faults would have to be tunneled [illegible]

across and [illegible] little coal obtained after [illegible] and [illegible] little can be taken [illegible] Osawa No. 2 drift.

The coal is still carried to the [illegible] [illegible] tubes on the backs of horses, as in [illegible] [illegible] and, but the inclined planes, the [illegible] [illegible] and the cars were very soon to be [illegible] again. With security a method of transportation [illegible] have been [illegible] in the whole that the yield of the mine was so small.

[illegible] 8 July.— [illegible] of the 2d of July we left our [illegible] quarters at Kayanuma [illegible] [illegible] [illegible], 7½ miles (3 ri); myself [illegible] [illegible] back, the rest still [illegible] by boat. [illegible] [illegible] of the 3d [illegible] as [illegible] [illegible] [illegible] for Otaru, 3 [illegible] [illegible] [illegible], [illegible] one [illegible] [illegible] to talk about a breakwater [illegible] [illegible] had been proposed to build at [illegible] [illegible], for the benefit of the coal trade, [illegible] [illegible] an hour in walking and [illegible] [illegible] to see the [illegible], and of course

knowledge to be gained in so short a time could only be very general and derived chiefly from the well informed [illegible] [illegible] who met us and was [illegible] [illegible] in hopes that a breakwater would be built. Before actually beginning to spend a [illegible] it would be best to have a thorough survey of the place and of its surroundings made, and, if possible, to take the advice of somebody more specially conversant with such matters than I am. The [illegible] in the anchorage runs north westerly, [illegible] round to westerly within a few hundred yards. Just at the head, and outside of the anchorage, they say there is a rock, about 200 yards wide that runs out nearly at right angles from the shore, reaching to a depth of only five feet at 100 yards from shore, ten feet at 200 yards, and 18 feet at 400 yards. In the anchorage the water is deep, even up to forty feet or so. Twenty or thirty junks were at anchor there, close to each other, side by side in rows, at the time of our visit; and there were a number

there last October at the time of the [illegible] that [illegible] so many wrecks in [illegible], [illegible] the place of the [illegible]; [illegible] as [illegible]. Nevertheless the bottom is [illegible] not good for anchoring. The plan proposed was to build a [illegible] on the shoal [illegible] (which they said cost [20000?] [illegible]). The bay is so very [illegible] that [illegible] a small space would be then [illegible] by such a breakwater, even if built [400?] yards long; but the protection to the whole of the present anchorage would be very greatly improved. From what I have seen of piers and breakwaters in so extremely exposed positions, I am [illegible] that such a structure as the one proposed would be broken almost every [illegible] enormous force of the waves striking [illegible] against it in heavy storms, [illegible] if built [illegible] filled with stones, much [illegible] than the [illegible] pier. I learned at [illegible] that the [illegible] wood used for the [illegible] was not attacked by the ship [illegible] [illegible] last fifteen years in the water. [illegible]

necessary however to count upon replacing it was often as that. It would therefore probably be much cheaper in the end to build with stone, which they said could be quarried at no very great distance. Owing to the shallowness the amount of stone needed would not be very great, even if a very gentle slope should be given to the outer side of the breakwater. With the map of a proper survey it would easy to calculate the amount of stone needed and to calculate the cost of the breakwater, and so to judge of the feasibility of building it for the amount of shipping to which it would be likely to give protection. If the outer slope should be made very gentle and protected with large blocks of stone, perhaps partly [illegible] cast stone, it seems to me that little [illegible] would afterwards ever be needed for [illegible]. There is no stream emptying [illegible] anchorage to silt it up; and the unsheltered shore is quite distant and for a number of miles merely a gently sloping sand beach without streams larger than small

rivulets and [illegible] some anchorage in its widest part, [illegible] the [illegible] would hardly be [illegible] in its quiet water and to be dredged out again when the [illegible] became in the course of many years too shallow. As far as ocean shipping is concerned it seems to me that such a breakwater would on the whole be less feasible than the [illegible] that has been proposed for Katsunai and [illegible] harbor, so much nearer to the mine, and so favorably situated in respect to all stone for building it and to everything else; yet the rocky bottom, bad for anchors (and in so small and well protected a harbor the vessels could perhaps be tied almost always to posts on shore). Nevertheless when the [illegible] and upper Shiribets valleys are opened up by waggon roads and farms the business of Iwanai as the [illegible] of a large and fertile region may very well justify the building of the [illegible] rock breakwater (in a prudent, economical way), especially since harbors are so rare [illegible]

the coast that a good one here and there would become of great importance as the resort of large vessels, which could take to Nippon or to China the fishery products brought from neighboring portions of the coast by small junks. The proposed Shibusi breakwater, although making a harbor large enough for shipping the coal, at least by steamers, might not give protection to so much shipping as the business of Iwanai would require.

Just as I was mounting my horse, my opinion was asked as to the buying of a steamer (a tug, as I understood) for the coal business. It would certainly be worth while to have one in case an artificial harbor should be made and coal should be mined in any quantity; but at present there seems to be no sufficient reason for incurring such an expense, with such a risk of loss by shipwreck.

I was finally off by eight o'clock and was surprised to find that [illegible] and most of the baggage hor[illegible]

late. The road as far as Ruebeshibe across the mountain was in very bad order a great part of the way, and here, as elsewhere repeated trips during the last two years have shown the deterioration to be pretty constant, and the repairs, within that time at least, to have been apparently none at all. From Ruebeshibe I wished to take the new road to the sea beach near Ushoro which the landlord said [illegible] was about finished and was to be opened within four or five days; and by which the distance to Ushoro would be four ri instead of eight, without a hill as far as to the sea shore. I had been delighted to give the Kaitakushi great credit for making at least one such improvement in the wretched roads of Yesso; but was afterwards told with evident pride by a rich Kaitakushi [illegible] that he had the contract for the building of the road but that the expense had been borne by the neighboring inhabitants, who had [illegible] to make the improvement!

In answer to inquiries about the road

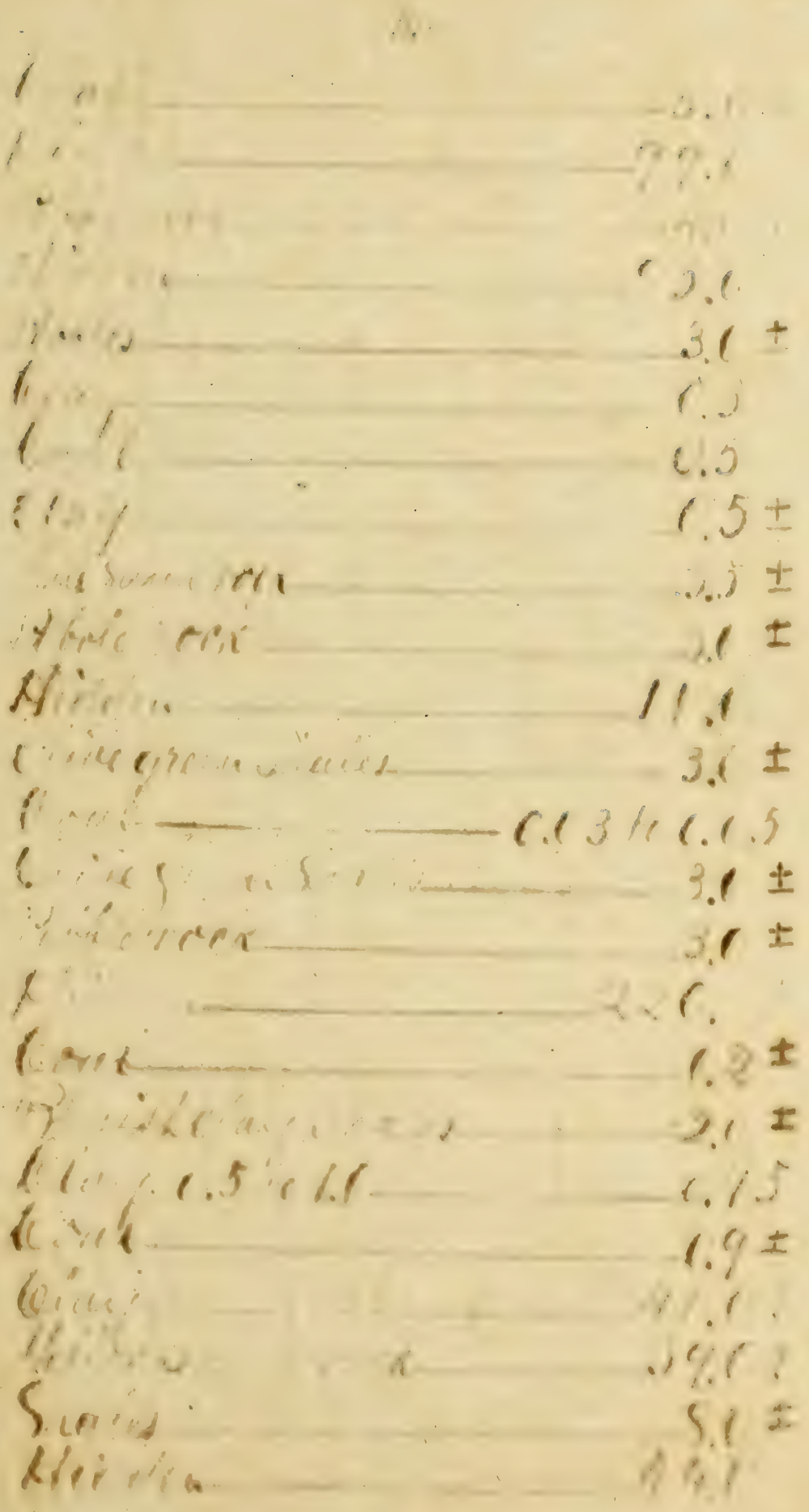
road on approaching it, no very clear account of it could be got; and the impression was given that, although some had travelled over it, it was not in very good condition. Thinking that if others had passed over it with horses we could do so too, and that, even though we went slowly, the saving of [illegible] was very important, I rode down it at [illegible] o'clock, after finding with great difficulty and delay the place where it began. It seemed but little travelled, although generally pretty well marked [illegible]. A man who [illegible] to be passing in a log canoe set me across at the Rubesh the ferry, which [illegible] spoken of, but which no one had thought to say was deserted and without a boat, and just too [illegible] to ford without getting very wet. The road went down the right bank of the River and was pretty straight and really very good, although there were two long hills to climb. Some of the bridges were bad, and once [illegible] to avoid them deep [illegible] had [illegible] used. At length at seven o'clock [illegible]

fully three ri, perhaps more, I came to an inhabited hunters cabin and found that the sea shore was still a ri and a half distant and Ushoro three ri; and that, although there were three very bad bridges within the next ri a horse had lately come up as far as to the cabin, the only time one had come even that far. No one of the many who had seen me take the road had thought to mention [illegible] [illegible] before, surprised that anybody should attempt the road [illegible]
or even to [illegible] the road; [illegible] [illegible] first time; an unusually good [illegible] [illegible] [illegible] [illegible] intermeddling with [illegible] other [illegible] [illegible] [illegible]. There proved to be even more than three bad bridges; the first was near a cabin whose inhabitants helped to get the horse across by fording; at the next he slipped through and narrowly missed breaking his legs; at the third and worst of all, made chiefly of a fallen tree with its large upper branches towards us, and with a high, steep, rubbishy, impracticable bank on the other side, he fell through but [illegible] [illegible] over one branch and sank [illegible]

it and another in a space scarcely large enough for his body, with a mass of sticks and rubbish below. Shouts only brought answers from some neighboring cabin; but on my returning back to the last cabin passed two or three men came quickly with an axe. Before the large side limb could be cut half through the bear had by his struggles and by a very remarkable twisting of his neck sunk below the main stem and he was then released with a little cutting of the driftwood. By almost a miracle he escaped from so extraordinary an experience without breaking either ribs or legs or neck. The men guided us a little further past the last bad places and left us to follow the path in a very slowly, last night (for it was already nine o'clock) to the sea shore, half a ri. But it was a very long half ri; for it took us an hour and a quarter to reach there (passing through the farming village of Kamakiyoshi although we missed the road but two or three times and never for more than fifty

yards. The road was after this easy and mostly familiar, nearly two ri, to Ishoro and we arrived at half past eleven. Just half an hour later, as it was beginning to rain, the groom and two other servants arrived with some baggage; not, as I supposed at first, by the same road (contrary to a message I had left for them at one of the cabins), for they had learned at the Rubeshibe ferry how impracticable the new road was and had gone by the old road to Yoichi; and so had all the others. The new road is still very far from being so short as had been said; but makes the distance from Rubeshibe to the Yoichi ferry perhaps a ri shorter than the old road does (a distance which I had fully lost in searching for the beginning), and is much more level. It would seem very well worth while to lay out the very small sum of money needed to make the few bad bridges good, and if necessary to dig ditches along the road. As present there has been so little travel that there is not much

except at the streams.
It rained heavily through the rest of the night and the early morning of the next day, 4th of July, Tuesday. But as the rain grew trifling towards noon, and the rest of the baggage had come, we started at eleven, and rode from Ohara to [illegible], 20 miles (8 ri). The road as far as Otaru was very slippery with mud, and the rest of the way very rough indeed with stones, so as to make going very slow with an unshod, [illegible] horse; but we arrived in nearly six hours. It is this heavy tax by bad roads upon the time and strength of every traveller and every packhorse, that makes it so economical to the public in the end to make good roads and to keep them in good repair. About nine o'clock the cook and groom arrived on foot, and said that although all the rest had arrived safely at Otaru [illegible] it had been impossible in two hours to obtain even three packhorses to bring forward the most necessary baggage



6.

Coal	1.15
Hidden	33.0
Dark green [illegible] sand rock	3.0
Green soft sand rock	2.0
Green sand rock	10.0
Dark green [illegible] grained sand rock	5.0
Dark [illegible] sand rock	4.0 ?
Hidden	27.0
Shales [illegible]	7.0 ?
Hidden	4.0
[illegible] rock	2.0 ?
Coal	1.0
[illegible]	2.5
Clay	3.0 ?
Hidden	3.0
Soft grayish sand rock	11.0 ?
Hidden	67.0
Grayish [illegible] shales	2.0
Hidden	16.0
Shales	5.0 ?
Hidden	5.0

7.

Bluish gray fine grained sand rock weathering brown	5.0 ?
Green sand weathering brown	5.0
Bluish gray fine grained sand rock weathering brown	1.0 ?
Hidden	34.0
Pebbles	2.0 ?
Fine Pebble rock	2.0
Light gray sandstone rock	2.0
Pebble rock	2.0 ?
Hidden	15.0
Hard fine grained greenish gray sand rock	1.0 ?
Hidden	117.0
Shales	4.0 ±
Hidden	21.0
Shale	4.0 ?
Hidden	81.0
Grayish green shales	13.0 ?
Hidden	3.0
Gray shales	9.0 ?
Hidden	21.0
Greenish gray shales	9.0 ?
Hidden	138.0

8.

Greenish gray shaly sandstone	10.0?
Hidden	11.0
Dark gray shales	18.0?
Hidden	3.0
Gray gray shales	7.0?
Hidden	4.0
Greenish gray shales	13.0?
Hidden	11.0
Shales	89.0?
Hidden	21.0
Brownish gray shales	4.0?
Gray shales (Blackish)	0.3
[illegible]	0.5
Bony coal	0.2
Coal (amplane 2.7)	2.0
Blackish sandy shales	0.6
Rather soft coal	0.6
Black sandy shales	3.0?
Hidden	9.0
Shales	36.0?
Hidden	43.0
Coal 0.2–0.3	0.25
Hidden	3.0

1.

[illegible]	3.0 ?
[illegible]	1.[illegible]
[illegible]	1.5 ±
[illegible]	3.0 ?
[illegible]	11.0
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	1.[illegible]
Coal	1.[illegible]
Dark brown[illegible]	1.[illegible]
Coal	1.[illegible]
[illegible]	[illegible]
[illegible]	12.0
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	
[illegible]	1.[illegible]
[illegible]	7.5
[illegible]	33.0
[illegible]	3.5
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
Sum[illegible]	[illegible]

[illegible]	1[illegible]
[illegible]	[illegible]
Coal	[illegible]
[illegible]	48[illegible]
[illegible]	2[illegible]
	225 2[illegible]

~~[illegible]~~

It is hard [illegible]
[illegible] in the [illegible]
[illegible] which [illegible]
[illegible] of the [illegible] Coal [illegible]
all we could [illegible] Coal
[illegible] to [illegible] map [illegible]

4. Coal — There are, [illegible], but two
[illegible] beds that are more than [illegible] feet
thick and may be considered workable. The
upper one of these was measured by [illegible]
Munroe in the bed of a small [illegible]
and found to be [illegible]
thick. There was [illegible])
on the same bed, but it was inaccessible
and a [illegible] and [illegible]
[illegible] Mr. [illegible]
a thickness of [illegible] feet and [illegible]
[illegible] found [illegible] is a [illegible]

[illegible] of hard brown rock.

There was also an old drift on the lower bed that could no longer be entered, and our only knowledge of the thickness there comes from a former miner who says, apparently with some eagerness, that it was four feet.

There is besides an old drift on the 2.6 foot coal bed about 170 feet above the 3½ foot bed; and any old drifts on the 2.0 foot to 2.7 foot bed that is about 295 feet above the 3½ foot bed, five of the [illegible] being in one [illegible]. Most of the drifts were at the time of the survey inaccessible, as far as to the coal; and the thickness was measured outside of the mines. It would seem, then, that most of the old mining was done upon the two uppermost beds, that appear to be [illegible] to work with profit, that is, hardly less than three feet. It is said, however, that the workings were abandoned only because of the lack of demand for the coal when it had been carried to Chili.

14.

Horomui; and the distance from Ishikari to Horomui is 32 miles (20 ri), and all level except two not very important hills near the port. There is said to be coal at two or three places on the streams between Ishikari and Otaru, it is not at all impossible that for the sake of coal mines, after [illegible] coal, it may be at some [illegible] time found advisable to build a railroad along the coast; and in that case the [illegible] [illegible] upon the [illegible] [illegible] there [illegible] [illegible] of the Horomui [illegible] [illegible].

6. Iwanai — The survey was begun in Sept. 1873 by Mr. H. S. Munroe, assistant geologist, who spent a week or [illegible] there, [illegible] of the mines [illegible] [illegible] the presence of coal, [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] of the [illegible]

B.

[illegible]

(including sections and all, $2\frac{5}{8}$ feet by $1\frac{2}{3}$)

[illegible] as well as the course that a [illegible]

[illegible]

I have the honor to be Sir,

Your most obedient servant
Benj. Smith [illegible]
[illegible] Engineer [illegible]

Sapporo; 17 July, 1873.

allowances, awards, police, and prisons [illegible] be supported by the revenues, [illegible] and [illegible] the same [illegible] required the land [illegible] expenses of [illegible] eight [illegible] expenses of a tax on shipping or on fishing privileges, [illegible] and police inspection expenses of [illegible] together. Under [illegible] that [illegible] to speak it is [illegible] [illegible].

Sapporo, 13 July. — As I have been some days in Sapporo, it may be worth a while to commit to [illegible] a few things that [illegible] under my eye, though there be nothing of any special time and no official information in regard to them has been given me.

The streets have a decidedly [illegible] look than they had last year, though the still very numerous empty [illegible]

near Solferino is in that dangerous con-
dition as it seems to endanger the town. I
mean the dam that is yielding near the
upper [illegible] of the canal that runs
through the village and supplies the com-
mune. The head gate and its appurte-
nances were carried away by a freshet
[illegible] '73, but early in 1874 were
rebuilt under [illegible] with the [illegible]
[illegible] and [illegible], and apparently
[illegible]
has [illegible]. [illegible]
[illegible] the water [illegible]
[illegible]
[illegible]
[illegible] a [illegible]
[illegible]
[illegible]
[illegible] stream [illegible]
[illegible] be kept as free from ob-
structions as possible in order to favor
the [illegible] escape of the water
[illegible] a matter of no little
astonishment to find that [illegible]

[illegible] new school houses have none. In the [illegible] place, a ventilated room of such houses the Japanese brazier would be a most dangerous heating apparatus and, even if enough [illegible] be admitted to prevent asphyxiation, with the fire tending to keep completely, would be very much increased. The custom adopted for some houses of putting an unmistakably stove pipe through a hole in the outer wall is a very unsafe one. [illegible] houses [illegible] windows and with [illegible] foreign furniture, chairs, [illegible] and bedsteads are [illegible] but seem to be [illegible] wholly ease in [illegible] a European [illegible] be [illegible] at [illegible]. It [illegible] to be [illegible] that no single [illegible] a change in the style of architecture [illegible] [illegible] instead of trying to [illegible] the ordinary Japanese house [illegible] winter climate. Even a few dollars [illegible] replacing most of the wood [illegible] rain doors and the paper of the

photograph at half the original scale.

We are all impatient to get into the field work; but owing to the break in the telegraph have been some days mainly expecting to hear definitely your wishes in regard to the survey for a Coal Road from Poronai; on the whole the best place to begin working the great Ishikari coal field, & Horomuimbuto, the nearest practicable shipping point on the coast; since there was some desire expressed for such a survey on my arrival here.

Sapporo: 20 Jul. 1876. — I improve the opportunity of sending you now this portion of the report of the season's work; and I have the honor to be,

&c.

Your most obedient servant,
Benj. Smith Lyman,
Chief Geologist and Mining Engr
to the Kaitakushi

Sapporo, 22 [illegible], 1875.

Messrs. T. Kuwada, S. Kimura, T. Koda, T. Mayeda and S. [illegible]iyama,
Assistant Geologists.

Gentlemen:

You will please go without unnecessary delay to the [illegible] [illegible] Ikushunbets and [illegible] [illegible] [illegible] last fall, and continue [illegible] [illegible] towards [illegible] [illegible] coal, [illegible] [illegible] the same general plan that [illegible] laid down in my instructions of last summer. The object is to trace out as nearly as may be the limits of the great coal field as far as to the Sorachi Coal [illegible] [illegible] [illegible] still further northeastward and northwestward or [illegible], and to make a map of the country [illegible] as well as [illegible] [illegible] [illegible] [illegible]. It is not very desirable at present to extend the survey to a very great distance on either side unless perhaps, as at the [illegible], [illegible] are unusually rich or favorable.

situated coal region should be met with. On reaching the Sorachi, if time remains, it would be desirable to make a little wider survey according to the instructions given by me to Mr. Yamauchi last year, taking for your main line the position of the synclinal axis as laid down on the sketch map that you have, and running cross lines on either side far enough at least to cover the main anticlinals that bring up the coal to the surface.

If you should hear nothing from me to the contrary please make arrangements to leave the field on the 1st of October.

I have the honor to be,

Gentlemen,

Your most obedient servant,

Benj. Smith Lyman

Chief Geologist and Mining Engineer

to the Kaitakushi

of them are found. In like manner to the [illegible] pits are numerous for 30 yards but soon disappear with [illegible] [illegible] there [illegible] hard [illegible] hematite but very [illegible] and it is [illegible] apparent [illegible] light in weight. [illegible] has [illegible] that in an analysis by Mr. [illegible] it yielded [illegible] 56 percent of iron and a large amount of phosphorus. I know nothing whatever of his trustworthiness as a chemist, but as I mentioned already last fall, it is highly [probable] that the amount of phosphorus would [be large], as in other bog iron ores, and the ore is therefore very bad.

[It is not easy] to ascertain the whole quantity of the ore, but it is clear that it must be quite small. It seems to have been formed in a swamp (perhaps out of some [small] deposit of magnetic iron sand from volcanic rock, for numerous bits of pumice and other volcanic stones are found in the alluvium here) and it is probably possible that the present surface of the ground, which is [illegible] or rather boggy, without [illegible]

[illegible] deep holes bore and run through [illegible] it is impossible to tell with [illegible] the extent of the bed of ore or its thickness at all points; but the same [illegible] in a measure the place [illegible] was exploration. Shaft has [illegible] merely a straight line, and there is no impossibility in supposing [illegible] thickness to be as great in that direction as in any other; they are in fact just as likely to be greater as to be less.

It may therefore be supposed that the bed [illegible] yards in diameter, [illegible] at its centre 2½ feet thick thinning out to nothing at the edges [illegible]. That would give perhaps [illegible] cubic [illegible], reckoning each [illegible] at twice the weight of water to the cubic [illegible] 400 tons. Although the [illegible] rough one it is enough to [illegible] the amount of ore is unquestionably too small to deserve any further consideration.

There is another exposure of the ore

[illegible] of yellowish clay, [illegible] [illegible] [illegible] [illegible] clay. The amount of ore here seems to be still so very [illegible] [illegible] [illegible] at the other places as to be [illegible] [illegible] quite insignificant. If the bed [illegible] any extent, it would doubtless have been seen in the bank or bed of the stream close by.

On the 21st of July as the weather was still rainy we kept on with our office work of mapmaking instead of going to look at the [illegible] [illegible] [illegible] [illegible] [illegible] and [illegible]. Towards night word came that you had requested by telegraph [illegible] [illegible] should make the [illegible] [illegible] for a coal road from Poronai (or [illegible] Kishiri) to the Ishcari river, as had been proposed to [illegible] [illegible] days before. [illegible] [illegible] to the iron ore places (from which so little in quantity as well as quality ~~as well as quality~~ of ore now seemed likely to result) was therefore put off until some other drier and more convenient time; and preparations for [illegible]

alluvial plain, but it has struck me that it may be a portion of what was once a part of the course of the [illegible] & that portion has been hollowed out unusually deep by a strong current, and [illegible] it would take longer than the rest of the plain to fill up to the present level, by the [illegible] uniform deposits of sand in times of high water.

The [illegible] say that the [illegible] and some other small streams a short distance north of where our line will run, flow southwards into this same [illegible] plain and end there in a swamp or pond that has no outlet, a remarkable circumstance in this region that is so far from arid, especially as the [illegible] is so near on the south and the [illegible] and [illegible] on the west. The small streams in question are also said to have few [illegible] much [illegible] [illegible] many [illegible] ponds without outlet would not seem to be [illegible].

On the 24th [illegible] yesterday and today the weather has been very rainy indeed so that we have had to keep in our tents

and do merely office work, up-keep writing and a little mapping. While I am measuring the main line with the transit, one of the assistants levels it with a Y level, and two others attend to the chaining and rod holding. The two others have [illegible] and as [illegible] a survey with the prismatic compass of the river shore above and below our starting point.

Camp, Ribeiribeta, 29 July.—The clouds cleared away last evening for a little while just at the right time to observe north star in order to determine the true meridian; and as it was not later than the convenient hour of half past ten, we made the trial, and had a very satisfactory observation with a good transit theodolite. This morning we reckoned the compass readings (i.e. twenty eight each) with the same result, on the mean of each set, sighting in the direction of the star and of our first line from the river bank, and with the telescope [illegible] reversed, the mean [illegible]

Tomiuchi?, 1 Sept, 1873

Messrs. T. Kuwada, T. Misaka, T. Kada, S. Mayeda
and S. Nishiyama, Assistant Geologists.
Gentlemen:

I have received from Yedo [illegible] wishes me to return there within this month; and I beg therefore that you will immediately on receiving this go without unnecessary delay to Sapporo in order to meet me and start thence with me by the twentieth of this month. On the way down the Ishikari at least one of you (say Mr. Kuwada) will please visit the coal said last year to have been found near [illegible] on the west side of the river; but will spend at most only a few hours there; so as to be able to give me some account of the number of beds exposed, their thickness, quality and dip and their accompanying rocks, without however delaying you more than a day or two.

I was glad to hear about you last night from Mr. Kuwada's letter to Mr. Nishimura, but sorry to find that so many of you have been sick. The weather has indeed been very bad for us this season. Hoping, however, to see you all now very soon in perfect health, I have the honor to be,

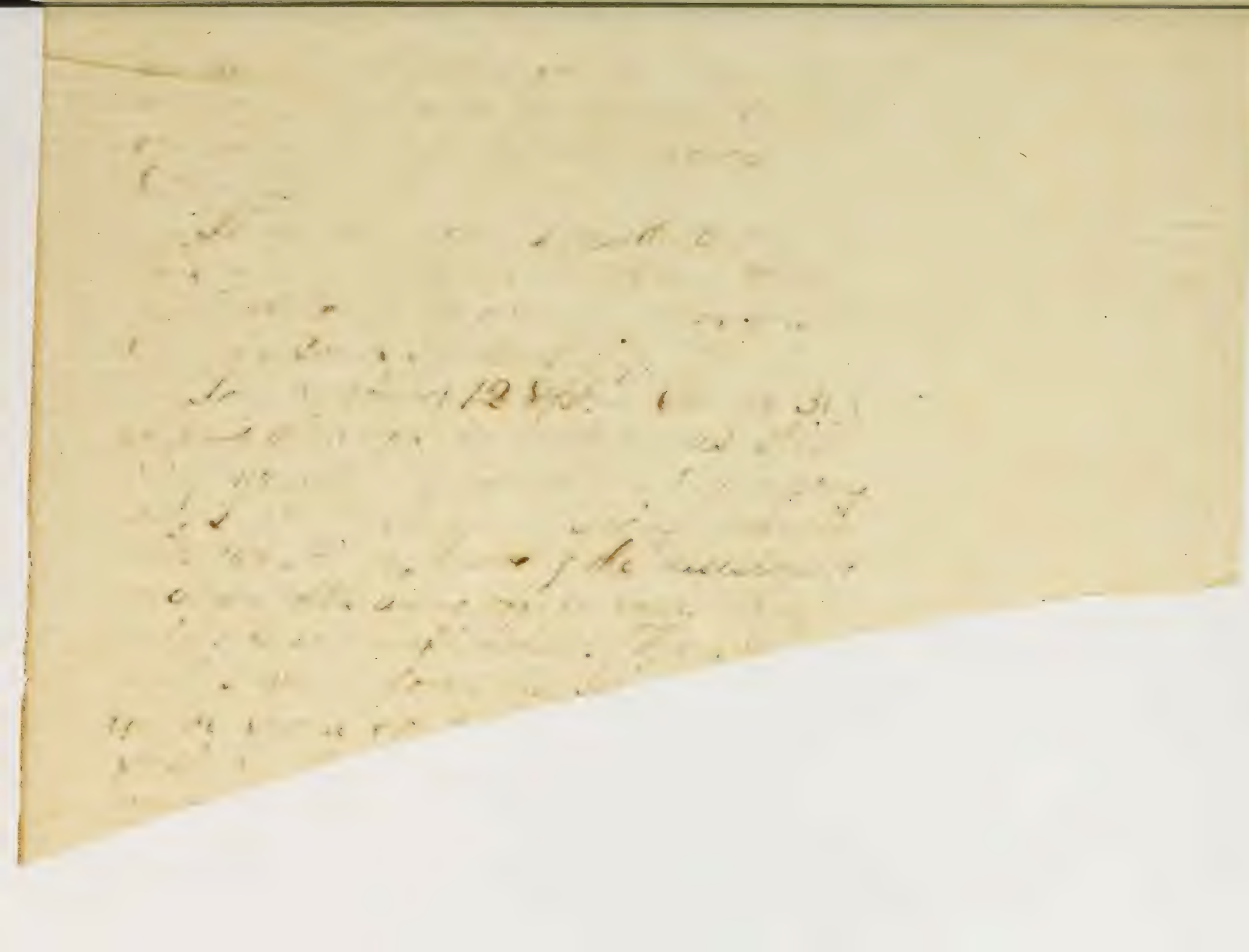
Gentlemen,

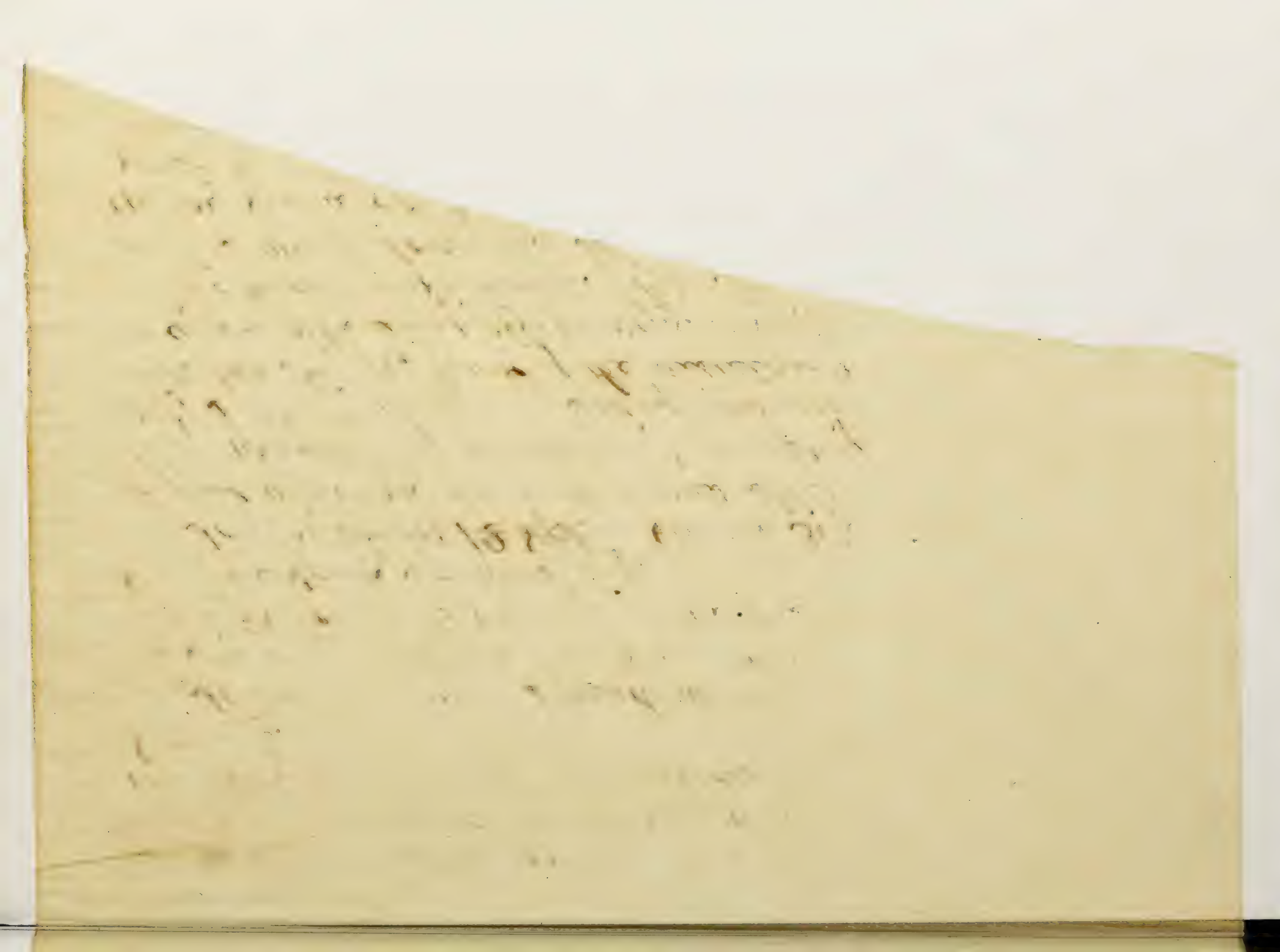
Your most obedient Servant

Benj. Smith Lyman,

Chief Geologist & Mining Engineer

to the Kaitakushi.





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24.

[illegible]

[illegible]
[illegible],
[illegible] 13 [illegible]
56 ri) of [illegible] was con-
sidered. Larger vessels [illegible] be
[illegible] to [illegible] than to Bibai
[illegible] (excepting [illegible]
[illegible] and I [illegible] Surveying
to refer [illegible]) only
for a short distance from Entshutoth
Bibai [illegible] be deserved. But above
Horomuibets the river grows gradually
shallow so that it would probably be
impracticable to deepen it through
the long space required so as to
enable much larger vessels to go
up to the Bibai. For an exploration
have to find out by surveying the relative
position of Pronai with reference to
Horomuibets, the [illegible]
cut out [illegible]. Such a
take [illegible] a great advantage.
The [illegible] (31 [illegible]
and therefore [illegible]

27.

2.

[illegible] [illegible] it and level it care-
fully with our best level & the best instru-
ment we had at command. The [illegible]
[illegible] [illegible] the [illegible] with the [illegible]
[illegible] and [illegible] by [illegible], short
[illegible] from [illegible] [illegible] to the
edge of the [illegible], or [illegible] of the [illegible]
[illegible] [illegible] [illegible] the edges of
high [illegible] [illegible] [illegible]
[illegible] a good deal of such work was
needed in order to [illegible] [illegible]
[illegible] [illegible] [illegible] where [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] the grading too costly. The
[illegible] [illegible] [illegible]. That valley
[illegible] [illegible] to be much less
simple in that respect than I had sup-
posed from the limited view furnished
by walking [illegible] the paths through the
[illegible], and it was clearly impossible
to lay out a line even with much
winding that should be wholly within
a narrow flat along the stream; for
in many places there is no such flat.

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[illegible], 23 Sept. [illegible]

[illegible]

[illegible]

Gentlemen:

I do not understand by [illegible] you have undertaken contrary to my injunctions to stay until [illegible] in [illegible], [illegible] no reasonable explanation is given. but feel very much [illegible] the [illegible] baggage was at [illegible], only one [illegible] from [illegible] seems to [illegible] no good reason for your remaining [illegible] yesterday; since the whole distance would have been only ten [illegible] and a half. It would seem you might at the very least have reached [illegible] last night and so have [illegible] making [illegible] still [illegible] without very great [illegible].

We cannot wait for [illegible] even if it causes the [illegible] convenience of your going [illegible] to [illegible]

[illegible]

[illegible]

[illegible]

Har-date; 27th [illegible]. — The [illegible] of [illegible] in [illegible] a [illegible] office work, and [illegible] was the [illegible] [illegible] the weather was cloudy and threatening; but after arranging office work for the assistants I [illegible] [illegible] to the [illegible] [illegible] had a little digging done. [illegible] was on the spot, it seemed best to do [illegible] geological work that [illegible] and to point out [illegible] where it would be best for [illegible] mining to begin. We [illegible] found [illegible] a little [illegible] [illegible] the coal beds called "L60 ca" and "L62 ba" [illegible] [illegible] [illegible] [illegible] report on the Assays of these Coals [illegible] be one and the same bed, and therefore probably on the average not [illegible] thick as "L602 ca" had seemed to be. The Coal "L602 a" is now so opened as to [illegible] [illegible] than it once [illegible] [illegible] and also proves to be [illegible] than had been supposed, i.e., [illegible]

about 4.2 feet thick. It turned out there-
fore that there was no object as regards
thickness or other respects in seeking the
first mine further up stream than
the original coal geologically oppo-
site portion coal bed, that of L5101. The
old opening at that point has its
coal now covered up by a slide of
earth from above; but there will be
no difficulty in reopening it and it
will be a good place to begin again
mining by a drift that will run into
the hill northeast and run through
a fine body of good coal above water
level.

On the opposite side of the brook
from that point a drift might also
be run southwesterly; but as the hill
is low only little coal above water
level [illegible] opened up before
reaching the other branch of the main
stream within a few hundred yards.
That comparatively small quantity
of coal (comparatively proximate because

is near the out crop) may be neglected for the present, or certain workings below water level make it desirable to have that portion of the bed drained as low as possible. [illegible] We went therefore to look for the same coal bed on the south-westerly side of the branch stream, where however it was not exposed two years ago. But now it had been well uncovered, [illegible] good thickness and quality in the bed of the brook, and we dug hopefully into the bank alongside, yet without success before the approach of night obliged us to return to camp.

Taking advantage of the fact that I was in this region I made arrangements for a visit to the Sulphur mines coal exposures (about a [illegible] distant) — mapped by my assistants last year, but in regard to whose thickness and dip they had some doubt owing to [illegible] difficulties; and some coolies went in advance to repair the places for me as well as they could.

The 11th of August was raining in the morning and very threatening almost all the rest of the day; so it was given up to office work. The 12th of August was spent in like manner at office work; since in the morning it was threatening very strongly to rain though none fell until after noon. As our camp was so far (one mi) from the end, where the staking out of the rail road should begin, it was not worth while to go so far with the probability so great of having to return at once, especially as there was plenty of office work that was still pressing. The 13th of August was very rainy and was given to office work. The 14th it rained several times and I did office work, but some of the assistants or others [illegible] [illegible] running [illegible] near by that was needed and were caught in the rain.

On the 15th of August (Sunday) the weather at length was better though [illegible] and with the assistants and

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[illegible] [illegible] I went to look at the Ingha-[illegible] coals leaving the rest of the assistants busy at office work. With some difficulty and digging we succeeded in making [illegible] satisfactory [illegible] dip and [illegible] thickness and [illegible] width of all the coal exposures we visited [illegible] and seemed possible that it [illegible] desirable after all to bring the [illegible] for the first [illegible] [illegible], but the day's work showed clearly that it was [illegible] had, [illegible] together and [illegible] been taken to be [illegible] really [illegible] [illegible] better than [illegible] coal; in fact the beds [illegible] [illegible]. But of that part [illegible] [illegible] the dips are [illegible] and that [illegible] [illegible] favourable for work [illegible] Tronoi.

On the [illegible] of [illegible], then, after a

little office work in the morning we
went to the Poronai coal to begin
the running of the railroad; and
first to set the coolies at work again
opening the coal. Some of them had
been digging there the day before at
the exposure in the brook and had
clearly uncovered the edge towards
the bank so that a sharply cut
line [illegible] [illegible] [illegible] definitely
well. [illegible] [illegible] of our difficulty the
former day in finding the coal
close by it [illegible] [illegible] [illegible]
quite [illegible] [illegible] [illegible] the
[illegible] [illegible] if we [illegible] might
be removed, but as there was a
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] operation without
mercy. With the interruption to
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] search and digging little
more than a mere beginning was
made before it was necessary to

search for coal again though every-
was done to disclose an important
error in the former years rough survey-
ing on which our prosecution was
based at that point.

On the 17th of August the coal
digging and the surveying were
continued, both under disadvan-
tage from the interruptions caused
by the other. The best coalers we had
to spare for the coal search were
so unused to that kind of work that
a good part of their labor was lost
even when you could stand and
watch them and direct almost
every stroke thoroughly, but when
they were left to themselves it was
even far worse. The coal bed was
therefore not found that day and
only a few hundred feet of rail
and fences in the woods over
rough ground were staked out.

The 18th of August was rainy again
though less so in the end than the

had threatened to be, and I occupied
myself all day with office work.
On the 19th of August a few hun-
dred feet more of railroad curves
were staked out, and some dig-
ging for the coal was done, both
under the same disadvantages
as before. The 20th was gen-
erally good till noon, then turning
after heavy rains in the night,
and we all busied ourselves
with office work; and the same
was the case on the 21st. The 22d
was still very threatening, es-
pecially in the opinion of our
most weather wise men, on [illegible]
[illegible]; and as it was Sunday
too, we took at length a day of
rest with but little office work,
as [illegible] it was more pressing had
already been done.

On the 23d of August we
did some additional explora-
tory surveying and plotted

3y

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(B.)

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and much more level country; you can perhaps learn on inquiry how long it took to lay it out and how many foreigners were employed on the work. We may have lost as much as a day or two in all by our inexperience; for, not only were my assistants unused to their work, but it was the first time that I had ever laid out, and many practical details that are so familiar to professed rail-road engineers as to be gone through almost mechanically with scarcely a thought had to be first learned and even at first studied out by myself with very few hints from any books I happened to have with me. The novelty of the work gave it, however, a charm to me, and I was very glad to get a little experience in a branch of engineering that was still so new to me; and to the young assistants all is grist that comes to their mill."

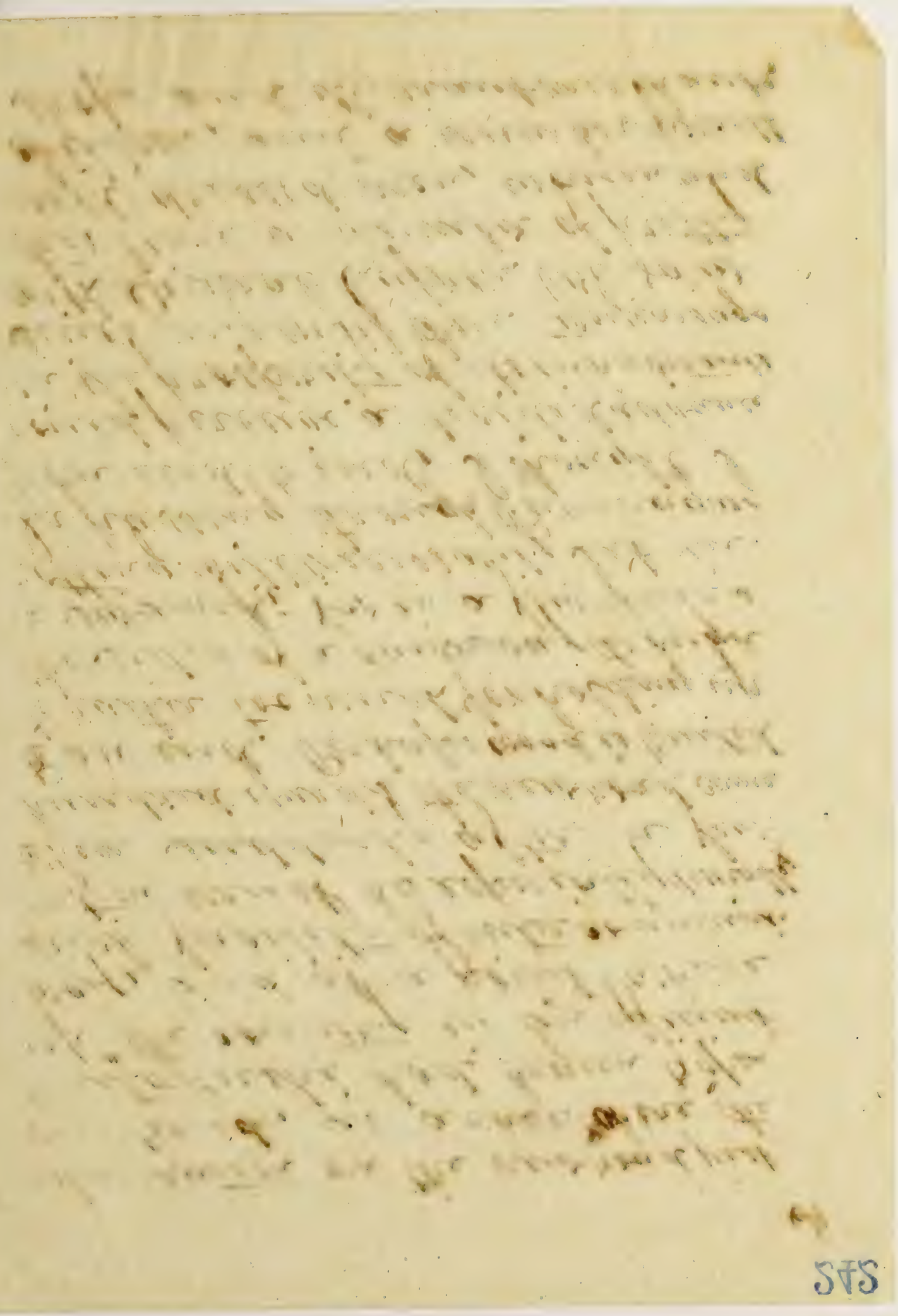
I should nevertheless have hardly been willing to undertake out of convenience a piece of work so great and trying if I had known beforehand that it, together with the bad weather, would have taken up so fully the whole season for geological field work, since my services might be more valuable in a geological way, and there were one or two trips that I was anxious to make this year. But the bad weather even there would have been a great drawback.

As for the desirableness of making the rail road survey at all, I was, strangely enough, not consulted at all, although I was given to understand at [illegible] that my presence in [illegible] was required for that purpose. On arriving at the place I found them already [illegible] by [illegible] officials and in a couple of days showed me a telegram which said that you "ordered"

the same horses and drivers could bring
back both cars empty the same day to
the mines; incurring a cost of perhaps
20 or 25 cents for the carriage of each
ton of coal; or together with the interest
30 cents in all, not counting repairs
to the road and cars. For a year's
product of 100 000 Tons it would
therefore be much cheaper to use
horses than Steam. For 200 000 Tons
a year the cost by horsepower would
still be some of less than that by
Steam; for the $ 70 000 interest required
for Steam power would be divided by
a larger number and become only
35 cents a ton and the mere transportation (not counting repairs to the
road) would be perhaps ten cents
a ton additional, or 45 cents in all,
whereas the horse power would cost
as before say 25 cents a ton besides
the interest, say 10 cents a ton, or
35 cents a ton in all. But for 300 000
tons a year [illegible]

23

11.



(1)

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[illegible] [illegible] whales, passing and [illegible] us, rising to the surface and diving below; some of them going under our [illegible] [illegible] of about [illegible] tons. The [illegible] [illegible], who [illegible] [illegible] the side of the [illegible] & made a [illegible] noise as to frighten them off, said they were not whales but Kasiuyaki [illegible] ([illegible]-above, and [illegible] entirely and that a stout, forward curved fin on their back was stiff and sharp, and that with it they would attack and kill a whale at with a [illegible].

October.— On the 29th of September I wrote a part of this report; and on the 30th was also busied a little in connection with it, and our heaviest luggage was put aboard the steamer. On the 1st of October we packed up the rest of our luggage and with it towards night went aboard the Tsukiumaru, which with favorable weather brought us in a little less than three days to Yoko-

house. The night of our arrival (4th Oct.) some of us came at once to Tokei; the others, owing to the lateness of the hour, waited at Yokohama until the next morning.

I have to express great satisfaction at the fidelity and usefulness of my original assistants, Messrs. Inagaki, Kuwada, Misawa, Takahashi, Kada, Saka, Shimada, Yamagiwa, Mayeda and Nishiyama and I am most thankful for the efficient aid they have given. The five that were with me most kept very hard at work almost constantly, but were always ready for any unusual exertion that was required. The other five, brought under my eye, were likewise equally faithful.

I have the honor to be,

Sir,

Your most obedient servant

Benj. Smith Lyman,

Chief Geologist and Mining Engineer

to the Kaitakushi.

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No. 34.

Shiba, 9th Oct. 1875.

His Excellency K. Kimura,
Kaitakushi [illegible].

Sir:

On the evening of the fifth of this month, my attention was called by a friend to an advertisement in a Yokohama newspaper to the effect that the Pacific Mail Steamship Company had three boxes of instruments addressed to me, and that if they should not be called for by the seventh they would be sold at auction. I accordingly went to Yokohama on the sixth and took possession of the boxes, and found them, to contain, as I supposed they would be surveying instruments (transits) which, though addressed to my name, I take to be the long missing ones of the [illegible] [illegible] for the Kaitakushi in [illegible] [illegible]

1873. I have in the mean while [illegible] a several times [illegible] to remind [illegible] but I am still ignorant of the [illegible] [illegible] having not received any answer. A letter written to [illegible] about April, 1873, said that one had been received, and that the other two would be sent by the next steamer. I went on a half [illegible] to Yokohama with Mr. Kawamura to search for the two in your godown there. They [illegible] shipped at last & have been sent till June of this year, and I have arrived at Yokohama about the end of August. I am quite at a loss to explain the cause of such a delay, but can at least assure you that the instruments are of the very best quality, and that they [illegible] came in good condition, and that they will no doubt be very useful [illegible] [illegible] needed in the [illegible] [illegible]. [illegible] the manufacture

has within the two years made decided improvements in his work.

The expenses paid by me in getting the instruments at Yokohama and bringing them here were as follows:

6 Oct. 1875, Paid to P. M. S. S. Co.:

for steamer freight & 3 packages of merchandise from San Francisco	$8,70	
Express charges from Philadelphia to San Francisco	18,00	
Expenses for storing in the Bonded warehouse	40	$27,30

6 Oct. Paid to the custom house:

Storage in Bonded warehouse	$0,45	
Duty	20,00	$20,45

6 Oct. Paid travelling expenses:

Railroad to Yokohama & back	Rios 2,00	
Railroad baggage fee	0,84	
Jinrikishas	0,50	
Coolies	0,06	
	Rios 3,40	$47,75

The custom house duty was charged in spite of my surging that the instruments

were, for the Geological survey; but can doubtless be easily procured by the Kaitakushi, if desired.

I have the honor to be,

Sir,

Your most obedient servant,

Benj. Smith Lyman.

Chief Geologist & Mining Engr.

of the Kaitakushi.

No. 26. Shiba; 12 Oct. 1875.

His Excellency K. Kuroda

Kaitakushi Chokwan.

Sir:

Although my assistants and I were ready here by the first of this month, I find that no plans have even yet been made ready for us to work [illegible] and. I ask the liberty to urge that the proper steps be made to hasten matters a little even at the expense of some slight inconvenience to [illegible], since the Kaitakushi loses by every day's delay not only my own salary of twenty yen, but those of all my assistants; and that, too, at a moment when from the shortness of the time left for my engagement every minute is [illegible] of [illegible].

There is an official or two [illegible] whose sole business at present is [illegible], the providing of the working accommodation that I desire, but in three days' time they have [illegible] [illegible] the [illegible] of the [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

[illegible]

[illegible]

way that my movements have been hindered
this year in travelling, and it is hardly to be wondered
at that my patience should fail and that I should
beg for some more energetic assistant in the
place and some one better acquainted with the
method of accomplishing his duties.

Three days ago the mules were in the commission
but now they are gone and the Alcalde [illegible]
is told that they have been sold and new ones
must be bought. Nevertheless I cannot concede
such a reality requiring more than half a day
to look for and buy new mules if the officials
should consult the interest of the Commission, rather
than their own petty conveniences.

Hoping for the speediest possible action
I have the honor to be,

Sir,

Your most obedient servant,

[illegible]

No. 27. Shiba; 14 Oct. 1878.

His Excellency K. Kuroda,
Kaitakuchokwan.

Sir:

I wrote yesterday to complain that the prop. officials had already very long delayed to prepare a suitable place for our geological mapping. Yesterday until this morning I have gone to see whether the rooms chosen had been put in order, and today find that mats indeed have been laid down; but evidently the very worst worn out mats that could be found in the whole Kaitakushi, so that the room is more like a pig pen than like a mapping room. The two officials Messrs. Nishimura and [illegible] (who with one servant have since [illegible] had nothing whatever to do but to accomplish the only a day's work of getting the rooms ready [illegible] perfectly well that what we need for drawing is clearly a room free from dust and that we [illegible] the reason [illegible] desired to use mats without [illegible] [illegible] meant mats [illegible] this disgusting [illegible] [illegible] would from the bottom [illegible] [illegible]

delayed by these ill timed indecencies of your sub-ordinate officials.

Begging to know what officials have been guilty of the apparently intentional outrage and what punishment has been inflicted upon them, I have the honor to be,

Sir, Your most Obedient Servant,

Benj. Smith Lyman,

Chief Geologist and Mining Engineer

of the Kaitakushi.

P.S. Mr. Mackintosh has just come to say that the intention had been to spread thin mats (goza) over the thick ones (tatami). The story comes too late to be readily believed; for, if true, why were not the goza laid down yesterday, or at least why was no one present between some nine and half past nine this morning to explain the intention before my disgust could be expressed? Besides the goza are quite unnecessary with decent tatami, and probably useless to prevent dust with such tatami as are now in the room.

B. S. L.

[illegible],
[illegible] 22d 1873

Rev. [illegible] S. [illegible]
[illegible]

My dear Sir
I [illegible]
[illegible]
reached you with as [illegible]
as could be expected from
a collection of [illegible] articles.
[illegible] one of your notes I
would suggest that you [illegible]
England a dozen [illegible]
[illegible] engraved,
with a quantity of [illegible] engraving
sufficient to fill them, and [illegible]
[illegible]
[illegible] is detailed
on a separate sheet [illegible] enclosed,
herewith, be adopted.
I hope you are getting along
well in Japan and that you
[illegible] to regret having

with which the enterprise in which
you have engaged.

The new Japanese Ambassador
is a very intelligent gentleman
[illegible] representing his country
at the seat of government of the
United States very efficiently
and with [illegible] credit to himself.

I presume that you are kept
posted, as to what is going on
in the States through the newspapers.

The subject of the Centennial
Exposition is occupying a large
share of public attention. At the
last session, Congress appropriated
$65,000 for a display by the
Smithsonian, of the [illegible] of
natural Resources and Ethnology
at the Exposition and we are
now busily engaged in making
preparation for the same.

With best wishes for the
success of your mission.

I am very truly yours,

(Signed) Joseph Henry

[Copy]

Smithsonian Institution,
Washington,

How to Construct a Barometer

A barometer which you might construct with a glass tube and a quantity of pure mercury would serve a good purpose in indicating the changes of atmospheric pressure and the transit of atmospheric waves.

For expelling the air from the mercury in the tube, the following process may be adopted.

1. Place the closed end of the tube downward and fill the tube entirely with mercury.

2. Place the finger on the open end, squeezing off the surplus metal, and invert the tube in a cup of mercury.

3. When the finger is withdrawn, the mercury will sink to a height of less than thirty inches and small bubbles of air will be seen

to rise along the sides of the tube. There
will be however a tolerably perfect
vacuum above.

[illegible] mercury [illegible]
[illegible] the bubbles,
[illegible] the [illegible] of the [illegible]
[illegible] and pass, as it were,
the [illegible] through the mercury which
will [illegible] passage.

2. [illegible] perpendicularly,
fill the [illegible] space at the upper
end with mercury, place the finger
again on the open end, re-invert
in the [illegible] of mercury. Repeat this
process several times and the result
will be equivalent to filling the
tube [illegible] vacuum.

Joseph Henry
(Signed) Secty S. Inst.

No. 29

Shiba; 18 Oct. 1875.

His Excellency R. Ruvodai,
Mombushokuwa.

Sir:

In passing one of the godowns [illegible] the day I noticed that some furniture was here [illegible] your was not in use, and beg that we may take it [illegible] [illegible]:

5 chairs, and more, if there are [illegible]
3 long school tables
1 Large school table with drawers.
1 Large case of shelves with glass front.

We could likewise use to advantage
1 Large drawing table or board (or more if there are more). [illegible] I saw [illegible] in one of the godowns out of use, probably from Mr. Day's office.

[illegible] [illegible]

[illegible] [illegible] [illegible] were in the godown
[illegible] [illegible] [illegible] which we [illegible]
3 [illegible] of [illegible] shelves in our [illegible]
[illegible] book shelves (for our couple of hundred [illegible] [illegible]

Copy

Kaishoji, Tokio.
October 18th 1875.

H. Benj. Smith Lyman
Chief Geological and Mining Engineer
Sir

Your of the 14th Inst, addressed to His Excellency Kuroda, relative to the delay of the preparation of your assaying room has been immediately forwarded to him, and it has been however sent back to me, on the ground that he could not assign [illegible] reason in the contents. So I beg hereby to enclose and return it to you.

About preparing the room in question I was intending, as I personally told you in some days ago, to assign it to you when I have duly approved its condition after the preparation had been completed. So I should think you need not have any trouble to argue the point of the preparation either right or wrong, before Authorities.

I would wish you will in future communicate to me about all affairs

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before you will bring it to H. E. Kuroda's notice; Moreover the question of spending [illegible] has been made delay on account of some consequence in our part

I am,
Sir,
(Signed) Yours very respectfully
Yasuda Sadanori
Kaitaku Shokangan.

(Translated by Y. Toguchi) [signed]

[A true copy,
1 Mch. 1875 Benj. Smith Lyman.]

No. 30.

Sitka, 19 Oct. 1875.

His Excellency K. Kuroda,
Kaitakuchikan

Sir:

I beg to inform you that Yasuda Sadanori has in answer to my letter to you of the 14th of this month sent me under date of yesterday a letter [illegible] I enclose a copy. In writing you on the 14th I had no idea that he was in any way to blame for the shameful delay in the purpose of our working rooms; but as he in his letter acknowledges that he is responsible, I begin to complain:

1st That although he expected our arrival on the [illegible] of last month as he told me afterwards, although we arrived on the 4th or 5th, it was the 9th of this month before any working rooms were offered to us.

2d That although the rooms were selected on the [illegible] and though it wanted but half a day's work [illegible] to put them in order [illegible] letter.

3d That he has insolently returned to me a very proper letter of complaint.

4th That he blames me very unjustly for writing to you about the preparation of the rooms, because he had told me something personally about it; when that communication was not made until about noon on the 15th, when I had already been some hours in possession of the rooms. I had come to look at the rooms on the 11th, 12th, 13th and 14th, and was disappointed to find them neither ready nor any one present who could give a satisfactory explanation, and was therefore quite right in addressing you, as I have almost invariably done in such matters, than instead of writing through Gen. Capron. Moreover I knew nothing then of Furuda's connection with the affair nor of any reason for writing to him.

Finally, I beg to say that I have been much pleased [illegible] the success of the letter of the 14th and its predecessors, and that I shall continue to address you whenever [illegible] fit in "these trifling matters" (as he is pleased to term them) and that I must consider it in future an [illegible] [illegible] if you send me any communication through [illegible]

I have the honor &c.,

Your most obedient Servant
Benj. Smith Lyman
Chief Geologist and Mining Engineer [illegible]

Kaitakushi, Ged, Japan; 20 Oct. 1875.

Prof. Joseph Henry
Secretary of the Smithsonian Institution,
Washington.

My dear Sir:

I have to thank you for the rec'd lately in Yesso of your favor of the 22d of June, enclosing instructions how to fill a barometer tube with quicksilver and drive out the air. The process is very simple and it seems as if it might well be as effective as the one of boiling the mercury in the tube; since in both cases the particles of air are separated from the mercury through causing them to expand, in one case by a lessening of the pressure upon them, in the other by heat. Some spare tubes and pure mercury were sent with the instruments that came to us from England, and the broken tubes were replaced by an instruments maker in Yokohama, who however half expected to break some

tubes in boiling the mercury. The barometers so repaired were brought back to Yedo by a Japanese official with some coolies, during my absence in the north, and on the way two of the tubes were again broken! So there is yet a chance to put your valuable instructions in practice.

You speak in your letter of intending to exhibit an ethnological collection next year at Philadelphia. I have some specimens of the clothing, furniture and tools of the Ainos, the aborigines of Yesso, and would be happy to contribute them to the collection, if you think it worth while. They were obtained for me by a Japanese official in Yesso, but through a misunderstanding only things that had been in actual use were collected instead of new ones. Consequently some of them are too dirty to handle without disgust but might perhaps bear looking at under glass, and indeed represent more fairly than new ones would that

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is actually seen in Yesso. One more dress has lately been added to the collection. I hoped also to have models of Aino houses, hunting implements and canoes, but have not succeeded. I have however the pleasure of sending herewith a set of 36 small photographs of such objects and of the Ainos themselves taken by a Japanese photographer of Hakodate. Some three years ago in the neighborhood of the village of Uraga. Perhaps you will think it worthwhile to have the photographs framed all together and exhibited.

The Japanese are intending to take an important part in the Philadelphia exhibition; but I know nothing of the details of their collection, nor how fully it will represent the ethnological characteristics of the Japanese or of the Ainos. I have sometimes thought it would be interesting to exhibit one or two rooms at least of a Japanese dwelling with all the furniture and the implements ordinarily used by Japanese in their homes. In fact a model

of a Japanese house perhaps two or three feet high could be bought here for five dollars or less according to size; for gardens models are much used by the Japanese in making little miniature gardens down to a foot and a half square that copy quite faithfully all the details of a large Japanese garden, so picturesque & so different from our western gardens. As the Japanese must send with their collection some servants to aid in taking care of it, they might at little additional expense send an Ainu man and woman in that capacity.

My three years' engagement here ends in December next; but I may possibly for my own amusement remain a few months longer in the Far East. Nevertheless hoping to see you in Washington and your collection in Philadelphia next spring, I remain

Very truly yours.

Benj. Smith Lyman.

A

[illegible], Yedo; 22 Oct. 1873.

Messrs. Heller and Brightly,
Instrument Makers.
No. 33 North Seventh Street, Philadelphia.

Gentlemen:

I have to acknowledge the receipt of your order within a few days past of two fine Transits No. 4661 and [illegible] done for the Kaitakushi in consequence of my telegraphic request of more than two years and a half ago. The most plausible reason I can think of for so enormous a delay in filling the order (until [illegible] the use for which they were wanted is all done, so far as I am concerned) is that you had probably to wait, owing to some misunderstanding, for the payment of your bill with the Japanese Minister at Washington. Still, if I remember rightly, I made myself responsible for the payment in Philadelphia. I must now however withdraw from any further responsibility in the matter unless you send me your bill by return mail for

[illegible]

I am just closing up all my accounts with the Kuitakushi, and cannot afterwards conveniently recover any thing from it.

The light transit of my own that you talked of sending has not even yet come to hand, much to my disappointment, and you will now please keep it until my return home. It is probable that at least ten or twelve others of the same pattern would have been ordered for my assistants, and we have much regretted the lack of them.

Hoping to hear from you very soon, I remain,

Gentlemen,

Very truly yours

Benj. Smith Lyman.

(Duplicate)

Kaitakushi, Yesso, 22 Oct. 1875.

Messrs. Heller and Brightly,
Instrument Makers,
No. 33 North Seventh Street, Philadelphia.

Gentlemen:

I have to acknowledge the receipt in good order within a few days past of two fine transits Nos. 4661 and 4666 sent by you to me for the Kaitakushi in consequence of my telegraphic request of more than two years and a half ago. The most plausible reason I can think of for so enormous a delay in filling the order (until in fact the work for which they were wanted is all done, as far as I am concerned) is that you had perhaps to wait, owing to some misunderstanding, for the payment of your bill by the Japanese Minister at Washington. Still, if I remember rightly, I made myself responsible for the payment in the first place. I must now however withdraw from any further responsibility in

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the [illegible] unless you send me your bill by [illegible] mail; for I am just closing up all my accounts with the Institute, and I cannot afterwards conveniently remove anything from it.

The light transit of [illegible] that you talked of sending has not even yet come to hand, which is my disappointment; and you will please [illegible] it until my return home. It [illegible] probable that at least two [illegible] others of the same pattern [illegible] been ordered for my assistants, [illegible] we have much regretted the lack of them.

Hoping to hear from you [illegible],
I remain,

Gentlemen,

Very truly yours,

Benj. Smith Lyman.

Shiba, 29 Oct. 1875.

His Excellency K. Kuroda,
Kaitakuchokuwan.

Sir:

Your letter of today has been received. Yasuda in sending back to me my very proper letter of complaint (which you are in effect answering) did not say that he was doing so by your order; it was merely an act of his own impudence. Your now saying that you instructed him to do it seems merely to show that you wished to do me one more piece of rudeness.

I must decline to communicate further with him, even though you do find it inconvenient to attend to your duties in the Kaitakushi or to provide suitably for them.

I have the honor to be,

Sir,

Your most obedient servant,
Benj. Smith Lyman,
Chief Geologist and Mining Engineer
to the Kaitakushi.

[No. 31]

632. [illegible] 18[illegible]

His Excellency [illegible],
[illegible]

Sir,

Your favor of the 24th of July bringing back one of the barometers [illegible] from England came duly to hand. I have since that learned that such [illegible] may be [illegible] the Messrs. Van Lissa at Yokohama [illegible] much expense and delay of sending to England can be saved. They also inform me that they sent back with the repaired barometers one unused tube and some of the pure quicksilver that came with the instruments from England. As I had carried to Yokohama only five of the seven spare tubes there must some still be there left; although there is but one in the [illegible] and I hope useful service may be made for the other two.

I recommend further that the barometer

be again put in good order by the Mejors. Van Lissa, since one at least has now a broken tube and two or three of the others need refilling with mercury, owing to the fact that some air has got into them in carrying them about from place to place.

2. One very important though simple meteorological instrument is still lacking for all the seven sets; and that is a vane to show the direction of the wind. I recommend that good ones of zinc be made here (according to plans that I will give, corresponding to the instructions of the Smithsonian Institution) to accompany the other instruments when they go to Yeso; and especially that one of the vanes be made at once to serve as a pattern for the others at any future time, and also to enable the direction of the wind to be recorded along with the other observations that are now made here.

I have the honor to be,

Sir,
Your most obedient Servant,
Benj. Smith Lyman
Chief Geologist and Mining Engineer
to the Kaitakushi.

No. 33.

Shiba; 4 Nov. 187[illegible].

His Excellency K. Kuroda,
Kaitaku chokwan.

Sir:

1. As we have now more room at our disposal than heretofore, we have lately undertaken to complete the unpacking and arrangement of the great number of minerals we have in three seasons brought back from Yesso. So far as possible we are putting them in the four glass topped cases that were provided for that purpose last year, and in such a manner that they can be conveniently seen and their names read through the glass without opening the cases or handling the minerals. For that purpose it has been necessary to have certain narrow wooden bars made to place between the rows of minerals so as to give a place for the labels; and the same bars are convenient additions to the drawers. I have also without delay ordered locks to be attached to the drawers of the tables, so as to prevent the

possibility of anybody's meddling with the minerals and confusing them, especially at the present moment when many have no labels pasted upon them, or [illegible] not have been put on in such a way to always look closes four drawers, and all the locks can (if desired) be removed without essential injury to the appearance of the tables. If the Kaitakushi should be unwilling to pay for these small but (as it seemed to me) important improvements, I shall be happy to bear their expense myself and remove them, if necessary, on my departure.

2. The four tables (even with their drawers, which should be reserved for the duplicates of the minerals in the glass cases) are quite insufficient for our Yesso minerals alone. Allowing one third of the whole number to be in the drawers as duplicates, there would probably be enough remaining to fill ten tables in all, or six more than we have now. If the collection

2

of minerals now in the Reception Room and the minerals that were in the chemical laboratory now I believe packed up and for the moment useless to every body) could be added to our collection they would be very useful to the geological [illegible] stable as a means of study, as [illegible] to all visitors who would [illegible] all the minerals together. Probably two more new tables would [illegible] for displaying those [illegible] minerals, making eight new tables besides the four we have; or twelve in all. I recommend therefore that eight new tables like present ones be made at [illegible] and fitted with label bars [illegible] for the glass cases and drawers.

3. I have also ordered 3000 blank labels to be lithographed in as simple a form as possible which it seems to me very desirable that the Kaitakushi should use for the Yesso minerals; but if their cost should

not be sanctioned I will keep them for my own use. I would recommend also that about 5000 more be ordered for future use, some of them of different colors in order to distinguish readily the Nippon and foreign minerals. The cost of printing the blank for or for the additional number will be less now than it would be to have the form redrawn on the stone.

4. I recommend further that 3000 new mineral trays be made like those we use now, of different sizes. The present number is insufficient, and many have necessarily been much soiled owing to the poor accommodation for the minerals we have hitherto had. The soiled ones can no doubt be cheaply repaired afterwards.

I have the honor to be,

Sir,

Your most obedient servant,

Benj. Smith Lyman,

Chief Geologist and Mining Engineer

to the Kaitakushi.

No. 34.

Shiba, 5 Nov. 1875.

His Excellency K. Kuroda,
Kaitakushichokwan

Sir.

Your letter dated [illegible] reason to refuse the 27th [illegible] [illegible] received.

My letter of the 27th [illegible] points [illegible] me expressed [illegible] doubt [illegible] instructions [illegible] Yasuda [illegible] letter of complaint. Yet, as he said nothing of such instructions he made the act a piece only of his own impudence. It is difficult to understand, however, why you should send the letter back to me merely because (as you now state) you did not understand it fully. Your sending it to him for explanations (according to the statement of [illegible] letter) is comprehensible, and his sending it to me is also comprehensible.

I must again decline to communicate further with him.

I have the honor to be
Sir,
Your most obedient Servant
Jerry Smith Lyons
Chief Geologist and Mining Engineer
to the Railroad